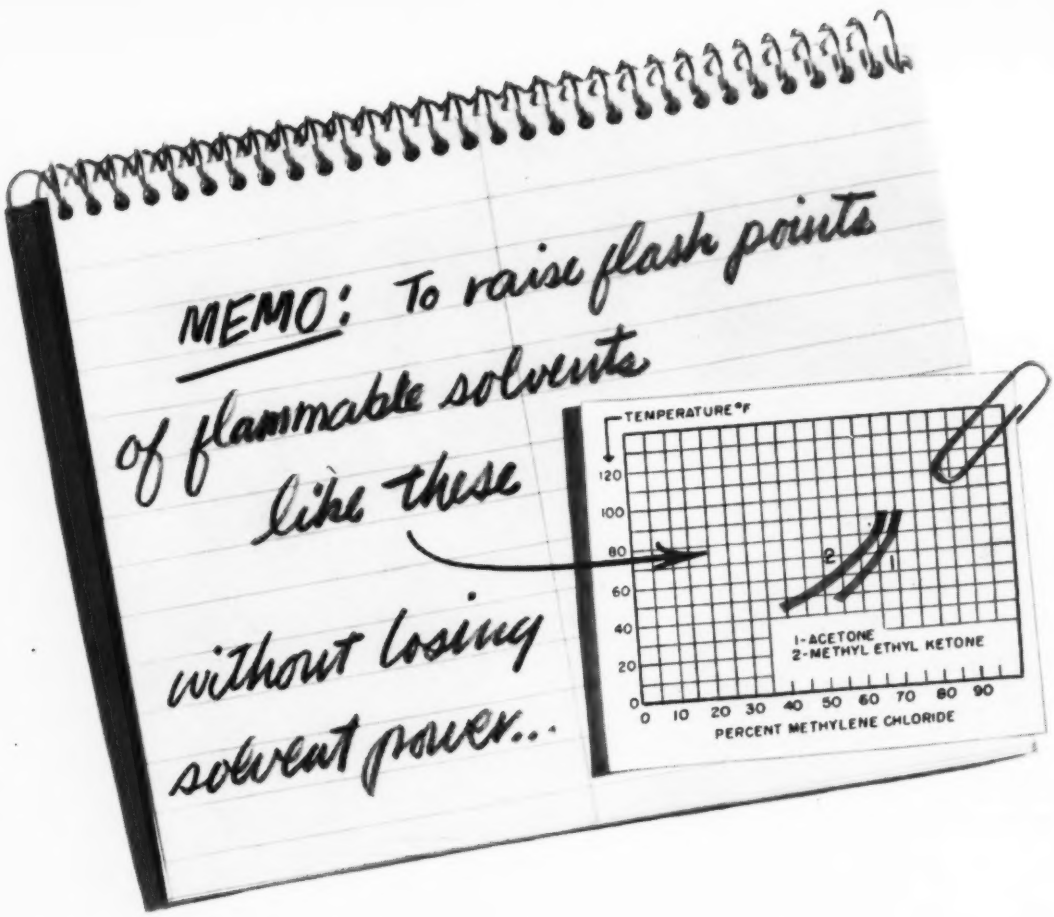
SOAP AND CHEMICAL SPECIALTIES

MARCH 1961

New label (left) and new formulation have just been adopted for "Bab-O" cleanser of B. T. Babbitt, Inc., New York. Product contains germicidal agent and surfactant. Comes in two sizes: 14 and 21 oz.

IN THIS ISSUE

New Trends in Nonionics 45
Enforcing Pesticide Act 73
Water Soluble Packaging Film 117
Johnson's Aerosol Plant 131



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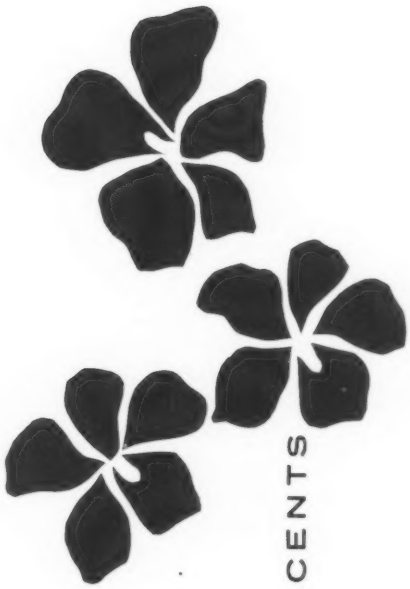

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ONYX CHEMICALS

New catalog now available.

Onyx Chemical Corporation

190 Warren Street, Jersey City, New Jersey

Vol. XXXVII, No. 3, March, 1961

Cover photo: New label and new formula have just been adopted for "Bab-O" scouring cleanser of B. T. Babbitt, Inc., New York. Product now includes an antiseptic agent, "Diaphene" and an anionic surfactant. A product of Stecker Chemicals, Inc., "Diaphene" is a brominated salicylanilide exhibiting bacteriostatic and fungistatic properties. New label design is white, with silver outlined green swirl around and under the product name, which appears in red. Two sizes: 14 and 21 oz. "giant," which retails for about 27 cents.

MEMBER

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SINCE 1934

IN THIS ISSUE

35 AS THE EDITOR SEES IT

39 AS THE READER SEES IT

43 DETERGENTS, CLEANSERS, SOAPS

45 NONIONIC SURFACTANTS TECHNOLOGY, *by Lester D. Berger, Jr.*

48 DETERGENTS IN SEWAGE AND WATER TREATMENT, *by W. K. Griesinger*

52 EARNING A POSITION IN SURFACTANTS, *by Carl Pacifico*

56 HAZARDOUS SUBSTANCES LABELING (Part II), *by Dr. E. G. Klarmann*

58 PINE OIL PUSH

67 CHEMICAL SPECIALTIES

73 ENFORCING THE PESTICIDE ACT, *by Thomas H. Harris, Clarence C. Donovan and Robert L. Caswell*

77 AEROSOL QUALITY CONTROL: CONCENTRATE AND CONCENTRATE SYSTEMS, *by S. J. Campbell*

80 AEROSOL QUALITY CONTROL: PHARMACEUTICAL AEROSOLS, *by John C. Armstrong*

83 AEROSOL QUALITY CONTROL: INFRARED ABSORPTION SPECTROSCOPY, *by Daniel H. Terry and J. A. Versocki*

87 ANALYSIS OF PHENOL DISINFECTANTS, *by D. E. Dean, R. Suffis and A. Levy*

95 SAFETY ASPECTS OF DDVP, *by E. A. Neuwirth and T. T. White*

113 PACKAGING

117 WATER SOLUBLE PACKAGING FILM, *by David F. Lowry*

121 PACKAGING NOTES

123 NEW PRODUCTS AND PICTURES

129 NEW TRADE MARKS

131 JOHNSON'S AEROSOL PLANT

135 PRESSURE PACKAGING

138 AEROSOL PATENTS

141 PRODUCTION

143 TRENDS IN ANIONIC DETERGENTS, *by R. Dale Stayner*

149 SOAP PLANT OBSERVER

153 NEW PATENTS

155 PRODUCTS AND PROCESSES

157 BOOK REVIEWS

161 NEWS

187 CLASSIFIED ADVERTISING

194 ADVERTISERS' INDEX

195 MEETINGS CALENDAR

196 TALE ENDS

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Initial appearance is important, but for a waxed surface to remain beautiful, it must be durable. Durability depends not only on resistance to abrasion of traffic, but even more so on resistance to discoloring marks. Durability should be measured by how long the waxed surface maintains a nice appearance before complete removal and re-waxing is required.

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Frequent damp mopping or wet traffic can make water resistance very important. Over-doing this quality when no problem exists out of the ordinary, simply increases the difficulty of complete removal or applying multiple coats. Removability must be considered as important as water-resistance under most normal conditions.

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The percentage of solid content is not nearly as important as the quality of the solids. Good quality indicates 12% of solids as the answer for most well planned maintenance programs. Two applications of 12% gives better results than one of 18%. "Used out" floors and other special problems maintain better when more concentrated waxes are used. Over-waxing and resultant greater difficulty in removal for periodic maintenance may do more harm than good.

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Bright Beauty PASTE WAX

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Miracle of the

Silently, unrelentingly, the Southern Pine labors to produce a key ingredient for your household cleaner

by Joan March Worden

To many of us, the words "pine tree" evoke memories of a forest of green and the refreshing fragrance of pine—an appeal to the sense of smell as distinct as nature itself and as subtle as jasmine.

"Pinus Palustrus," the long leaf pine, is found all across the southern United States. And it is in this pine tree that most of the world's pine oil originates.

After the tree has been cut down, the stump builds up a rich storehouse of pine oil.

When nature has completed this part of the job, man takes over.

Long used in industry for its cleaning and disinfecting value, pine oil now plays that same role in new consumer products—today's modern pine household cleaners.

Pine oil in a cleaner does more than give a room a fresh, woodsy aroma. Pine oil makes a good cleaning product much more efficient. It's a universal cleaner for everything from venetian blinds to kitchen cabinets.

Used in proper quantity, pine oil gives quick, effective cleaning ac-

tion. Still higher percentages make the product useful for sanitation purposes and as an antibacterial agent. A cleaner with a high percentage of pine oil will kill germs of many communicable diseases.

It's nice to know that a surface not only looks clean but is also hygienically clean.

You may wonder, as I did, just how pine oil works.

Pine

Well, it picks up dirt and floats it around so that water can sweep it away. Pine oil has a powerful and fast solvent action. It actually dissolves greases, tars, and many other stains that are so hard to remove.

Where cleanliness is a "must" pine oil is the answer. All around the house, pine oil can be used for all work, cleaning away at whatever needs cleaning—floors to ceiling and everything in between.

In the laundry, pine cleaner is a big help, releasing dirt and keeping wear and tear on clothes at a minimum. Imagine how useful it can be in the nursery—which should be clean, germ-free and sweet smelling all at once.

Pine oil will work outdoors as well. Paintbrushes, cars, and even dogs can be pine-washed—in different quantities, of course.

Today thousands of reputable companies all over the world manufacture pine cleaner products for consumers. Pine oil is so widely used in cleaners that it's available everywhere.

The companies that make these pine products have technical staffs that design the product for the job to be done.

Some are tailored for specific uses, such as disinfecting and deodorizing.

Others, like many of today's pine cleaners, are all purpose. Incidentally, although most of these cleaners are made in liquid form, some are of the powder or jelly type and others are packaged as aerosols. No matter what form the cleaning product takes, read the label to be sure it contains pine oil—the hard working nature product that makes your household chores so much easier.

Joan March Worden is director of the Pine Cleaner Information Center, 205 East 42nd St., New York 17, N. Y., an educational organization currently sponsored by Hercules Powder Company, Wilmington, Delaware, manufacturers of pine oil.

65 MILLION PEOPLE WILL SEE THIS MESSAGE

This advertisement appears in April READER'S DIGEST and subsequently in 13 languages in all 27 international editions. For further details on this promotion and how it can help you, write: Naval Stores Department, Hercules Powder Company, Hercules Tower, Wilmington 99, Delaware.

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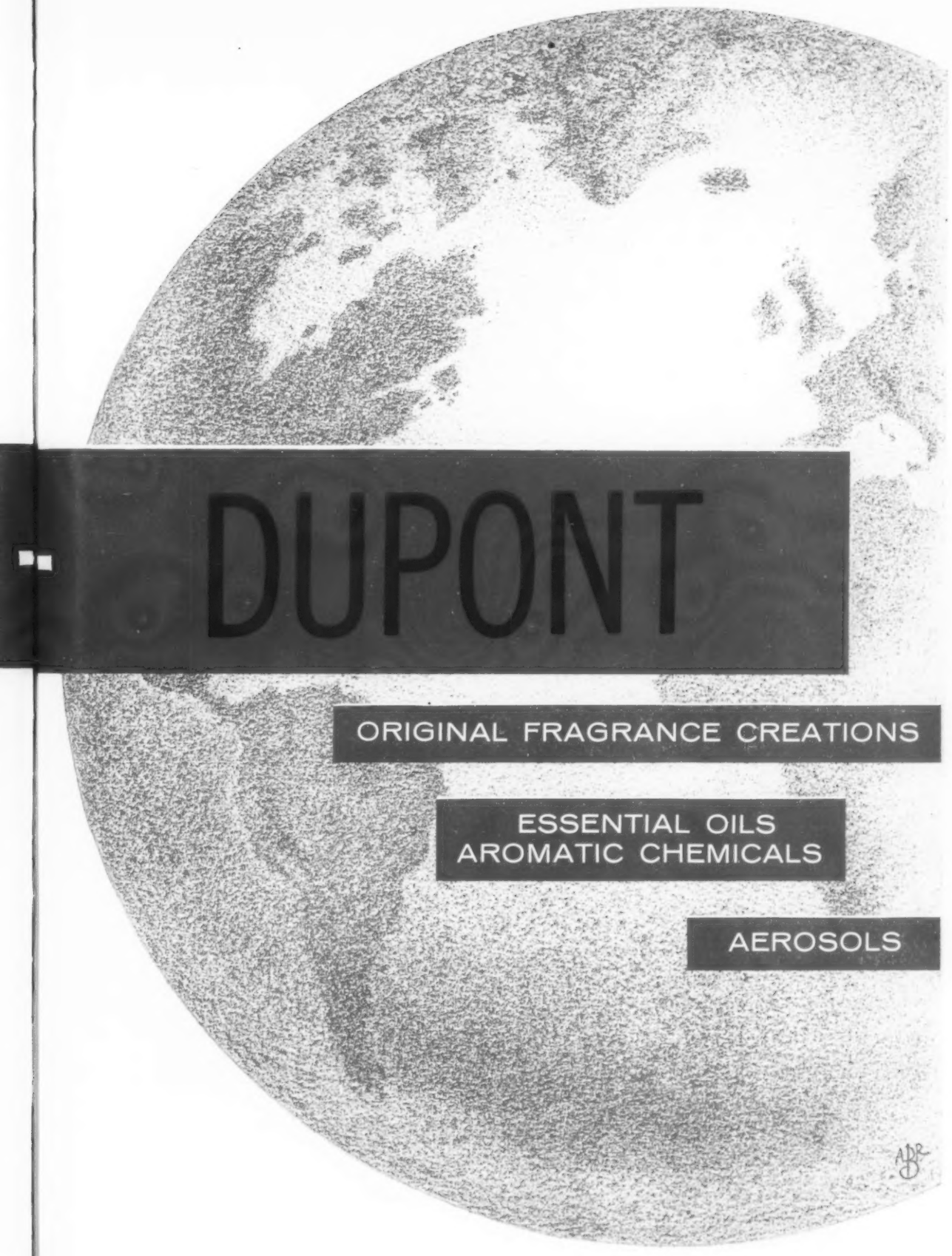
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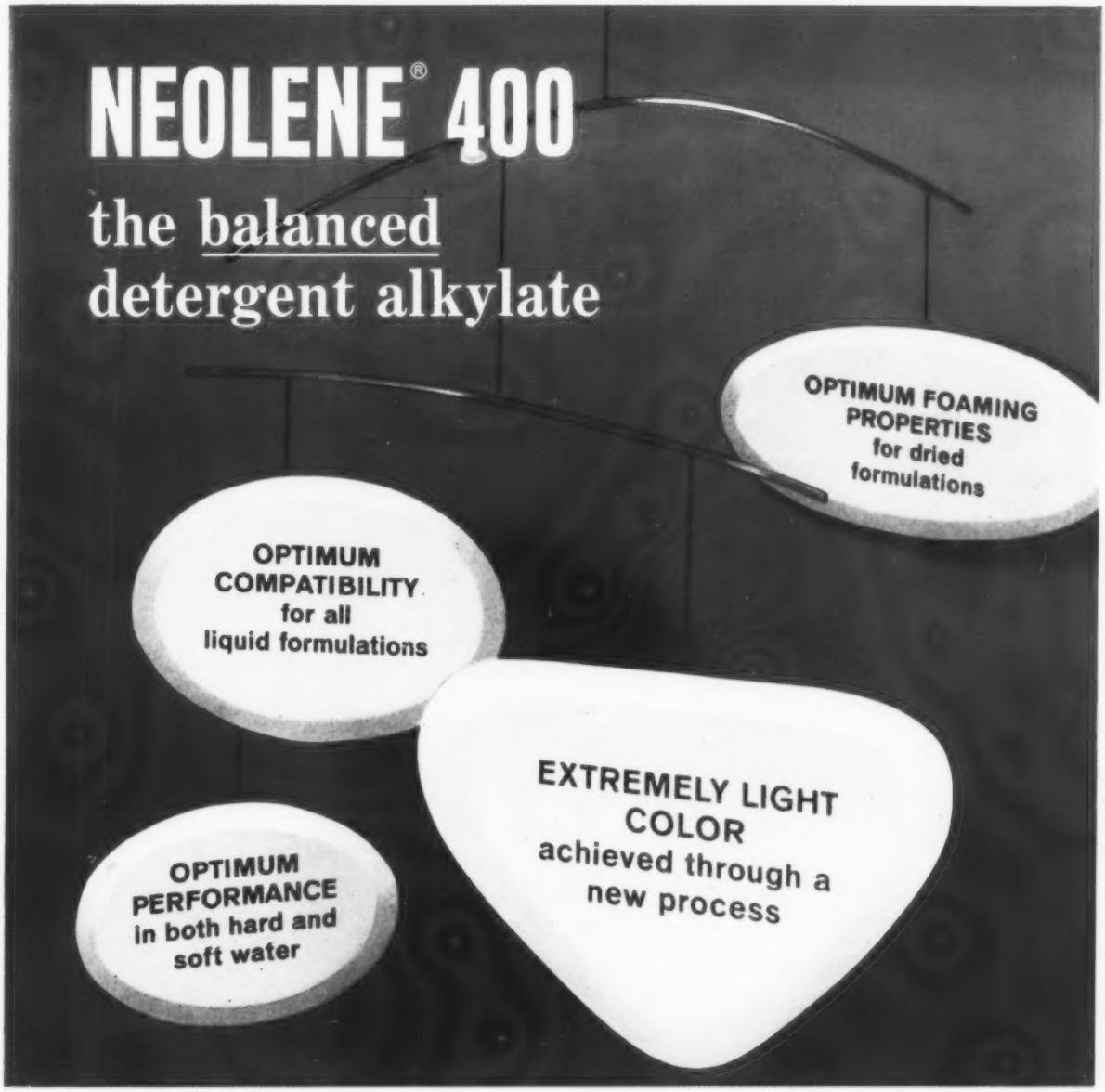
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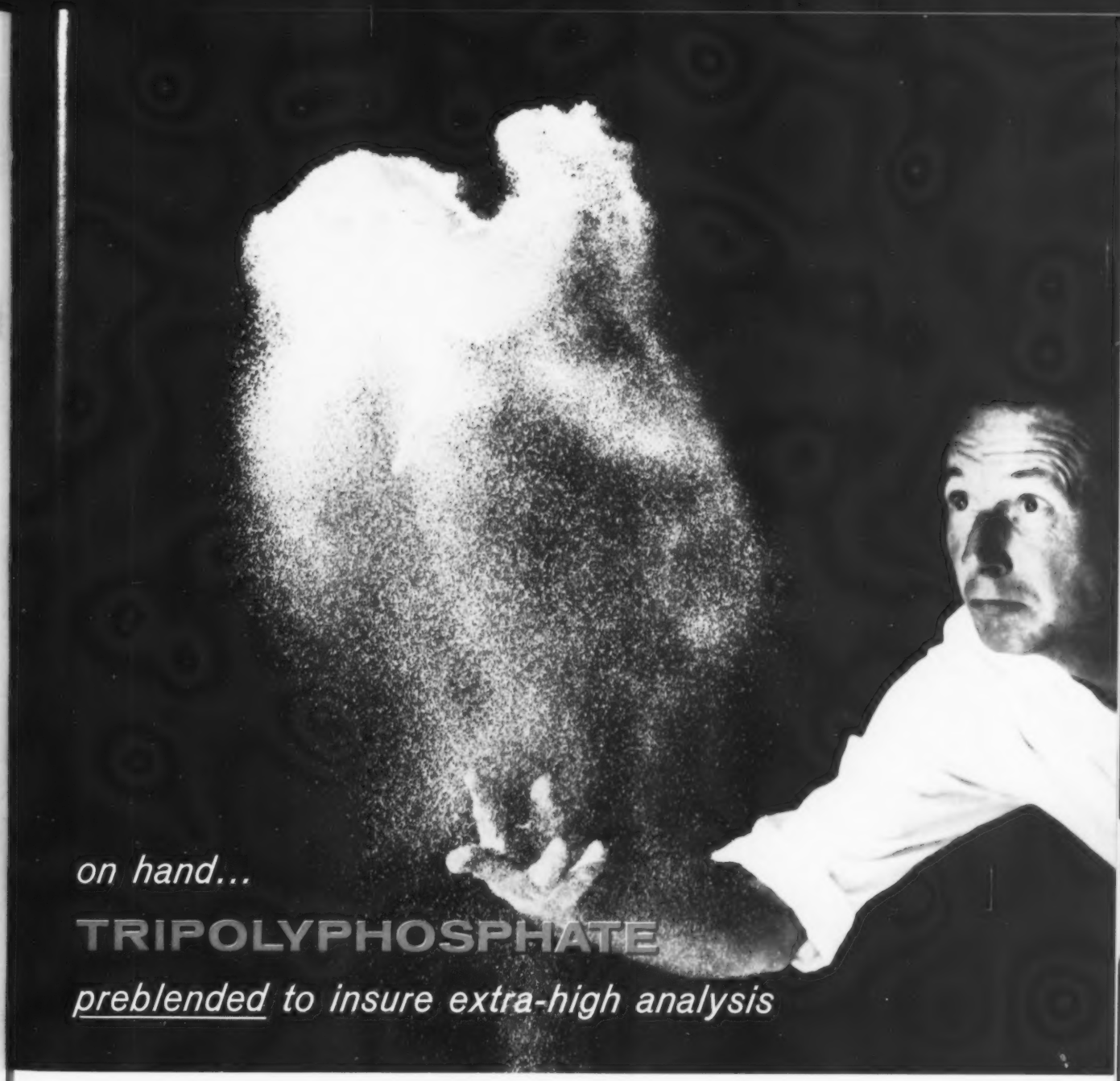

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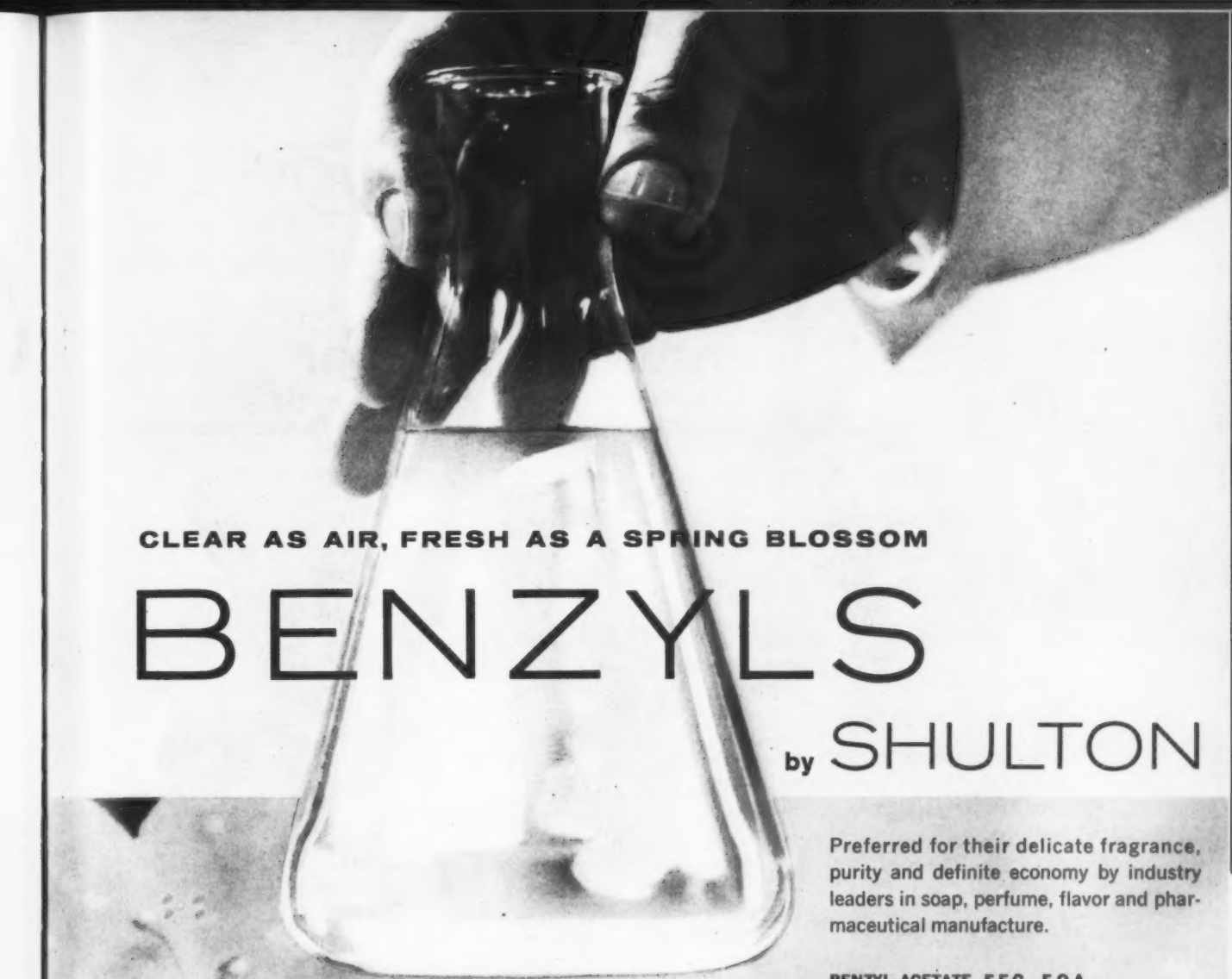

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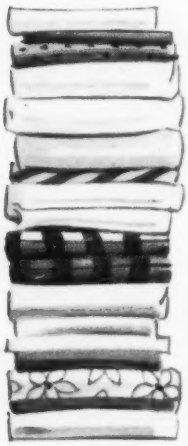

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* California Chemical Company's trademark for its detergent intermediate.

6939

AFTER CLOSING---

Government Drops Soap Anti-Trust Suit

THE U. S. Government has dropped its anti-trust suit against three soap companies and the Soap Association. This action was taken in a Newark, N. J., Federal District Court, March 6, by the U. S. Department of Justice.

Involved in the suit, which has lasted eight years, were Colgate-Palmolive Co., New York; Procter & Gamble Co., Cincinnati, and Lever Brothers Co., New York. Also named in the action was the Association of American Soap & Glycerine Producers, New York.

The dismissal order was "with prejudice," which means that the suit cannot be reinstituted on the basis of the same evidence. It began in December, 1952, and charged the soap companies and their trade association with conspiracy in restraint of trade and joint monopolization in the household soap and synthetic detergent industry.

Roy W. Peet, manager of the Soap Association, termed the dismissal a "major victory for members of the soap industry and its trade association." According to Mr. Peet, "the dismissal of this civil suit along with previous failure of the Department of Justice to obtain a criminal indictment, represents complete exoneration of the industry from charges made against its association and against certain of its members."

A number of intricate legal maneuvers were involved in the case over the past eight years, including an appeal to the U. S. Supreme Court by the Justice Department from a previous dismissal, on the grounds that the Justice Department refused to make the grand jury transcript available to all defendants. Upon this appeal, the case was remanded to the District Court for trial.

In December 1960, the District Court again required that the Department of Justice make the grand jury transcript available to all defendants. Although the Justice Department complied with the Court's order and furnished grand jury transcripts, it subsequently moved for a dismissal of the case, which the Court granted March 6.

The three companies were investigated by a grand jury for 18 months in 1951 and 1952. No indictment was returned. On Dec. 11, 1952, the Government brought a civil action against the companies and the Association. Trial of the case was delayed by three years of maneuvering and sparring by both sides. Principal argument raised by the defendants was that the Government had abused the privilege of the grand jury by using it to gain evidence for a civil case, without the intention of attempting criminal prosecution. Access to the grand jury minutes was requested. The minutes were ordered to be produced, and rather than comply, the Government allowed the case to be dismissed.

—★—

Wilson Armour President

Edward W. Wilson, with the firm since 1917, was elected president of Armour and Co., Chicago, it was announced recently.

Edward W. Wilson

Mr. Wilson, a member and past president of the Association of American Soap and Glycerine Producers, Inc., was named manager of the glycerine and raw material department in 1923. He was elected vice-president and general manager of the former Armour Auxiliaries (now a part of Armour Chemical Industries) in 1949. He was elected group vice-president in 1955, and executive vice-president and manager of Armour Chemical Industries in 1956.

—★—

William Gesell Dies

William H. Gesell, Jr., 46, president of R. Gesell, Inc., New York, died March 8th of a heart attack in his home, 235A Christopher Street, Upper Montclair, N. J.

—★—

Firms Report Earnings

The following companies have recently issued reports of their earnings for 1960: American Home Products Corp., New York, earnings per share were $6.29, as compared with $6.08 for 1959. Gross sales rose to $489,007,322 from $451,014,484 in 1959, with net income listed at $48,574,668 for 1960, compared with $46,661,952 in the previous year.

Brillo Manufacturing Co., Brooklyn, reported net sales were $24,648,415, compared with $22,-[illegible]5,958 in 1959. Income was down from $1,276,778 in 1959 to $758,-407. Earnings per share dropped to $1.75 for 1960, from $2.95 in 1959.

Earnings per share were up to $1.76 from $1.46 in 1959, Cowles Chemical Co., Cleveland reported. Sales for the year increased to $9,766,923 from $8,611,269 in 1959, and net income also rose to $373,-984 from $315,862 in 1959.

Revlon, Inc., New York, and subsidiaries reported increases in sales, earnings, and income over 1959 figures. Sales were $136,373,-000, as compared with $124,939,712, income for 1960 was $11,321,000, up from $10,836,797 in 1959, and earnings per share were $4.37, as

compared with $4.19 in 1959.

West Chemical Products, Inc., Long Island City, N.Y., reported for the first 11 months of 1960 sales of $24,881,419, as compared with $22,094,034 in 1959. Income was also up to $699,817, from $656,014 in 1959. Earnings per share rose to $1.73 as compared with $1.61 in 1959.

—★—

Colgate's Guillot Dies

D. Herbert Guillot, 64, new Orleans district manager of the household products department, Colgate-Palmolive Co., New York, died recently. Mr. Guillot had been associated with the firm for 37 years.

—★—

Collett to Leave Lever

Ray Collett, advertising and market research director, Lever Brothers, Ltd., Toronto, will join McCann-Erickson, Toronto, as a senior vice-president at the end of March, it was announced recently. Mr. Collett, prior to joining Lever in 1957, was a vice-president and manager at Young & Rubicam, Toronto.

—★—

Brick Joins Raytex

It was recently announced that Leon P. Brick has been appointed vice-president, director of sales, for Raytex Chemical Corp., Allentown, Pa. Mr. Brick, formerly executive vice-president, Onyx Oil & Chemical Co., Jersey City, N. J., has for many years offered to the textile industry his personal services for the development and sales of chemical specialty products, applicable to the textile yarn, knitted fabric, and woven goods trades.

Leon P. Brick

The "Lucky Seven" direct mail campaign of the industrial division, Purex Corp., South Gate, Calif., was named best of its category in the Direct Mail Advertising Association 1960 Leaders Contest, held recently in Miami. Incorporated within a series of 11 mailings, was an elaborate red and white pop-up dice box, and a pair of dice which rolled only sevens.

—★—

ACS Meets in St. Louis

The 139th national meeting of the American Chemical Society is to hear an eight day technical program in St. Louis, March 21 to 30. More than a thousand scientific papers will be presented at sessions of the 22 scientific and technical divisions.

Advances in polymer and surface chemistry will be discussed. Papers on colloid chemistry and on the development of improved synthetic disposable fabrics will be presented. A novel rapid screening technique for new chemical products will be described. A special program of the Division of Water and Waste Chemistry will be devoted to pollution problems.

—★—

Firmenich Moves Office

Firmenich, Inc., New York, has relocated its Chicago office in larger facilities at 5422 North Milwaukee Ave., it was announced recently. The company also reported its midwestern operations would continue under the direction of C. Richard Myers, manager. John V. Rush will continue as assistant to Mr. Myers.

—★—

New Reference List

Ungerer & Co., New York, announced recently the distribution of its reference list #61, describing new perfuming and flavor products. Copies of the new products list are available to consuming industries from Ungerer & Co., 161 Avenue of Americas, New York 13, N. Y.

—★—

Penick Renames English Co.

S. B. Penick & Co., New York, announced recently that the name of its associate company in England, C. F. Gerhardt, Ltd., has been changed to Gerhardt-Penick, Ltd.

C. F. Gerhardt, Ltd. has acted as Penick's sole agent in the United Kingdom for many years, and in 1952 was acquired by Penick. Since that time Gerhardt has become a supplier of botanical drugs and a number of pharmaceutical chemicals in England, and is active in the export market as well.

The offices, manufacturing facilities, and laboratories of Gerhardt-Penick, Ltd. are located at

Purley Way, Croydon, Surrey, England. The company has sales representatives in England, Scotland, Ireland, and Wales.

—★—

Premium Show Apr. 10-13

The 28th annual National Premium Buyers Exposition will be held April 10-13, at the Navy Pier, Chicago.

The exposition committee, consisting of premium buyers from 24 companies, will serve in an advisory capacity to the show managers, as well as hosts during the four day exposition. Included on the 1961 NPBE committee are: George F. Beck, Anchor Hocking Glass Corp., Lancaster, O.; Robert S. Doersam, Procter & Gamble Co., Cincinnati; William T. Otto, Hazel-Atlas Glass Division, Continental Can Co., New York.

—★—

Davies-Young Appoints

The appointments of Lindsay C. Graham and Gerald Scott as sales promotional representatives, were announced recently by Davies-Young Soap Co., Dayton, O.

Mr. Graham represents the "Buckeye" line of cleaning and maintenance materials for authorized distributors in Massachusetts, Vermont, New Hampshire, Maine and eastern Canada. Mr. Scott will assist authorized distributors in Missouri, southern Illinois, and northwestern Kentucky in the promotion and sale of "Buckeye" products.

Lindsay C. Graham

Gerald Scott

Shanco Expands Facilities

Target date for completion of enlarging production capacity for resins at Shanco Plastics & Chemicals Inc., Tonawanda, N. Y., is March 1, it was reported recently.

Stainless steel equipment for material handling and indirect radiant heating for improved color in products, plus electronic control devices, are said to be incorporated in the new facility.

—★—

New Florasynth Catalog

A new, 20-page, perfume catalog, devoted to a wide variety of perfume oils and perfumers' materials manufactured by Florasynth Laboratories, Inc., New York, is now available.

The important flowerols and perfume specialties as well as their aerosol bouquets are listed with current prices. A section of the catalog containing a large list of cover-odors (pages 9, 10, and 11), is of special interest to manufacturers of industrial products.

—★—

Atlantic Names Hersberger

Arthur B. Hersberger was recently appointed to the newly created position of general manager – marketing, Atlantic Refining Co., Philadelphia. Mr. Hersberger, with the firm since 1936, has held positions as associate chemist; senior chemist; process supervisor; divisional director; manager, chemical products section; manager, products sales division; and manager, headquarters sales and special services. He was general manager of foreign marketing prior to his present appointment. Mr. Hersberger is a councilor, American Chemical Society – Philadelphia section.

Dr. A. B. Hersberger

Reporting directly to Mr. Hersberger under the reorganized marketing structure are: C. E. Bonine, manager, chemical sales department, and M. G. Davis, general manager, domestic marketing department.

—★—

P. C. Magnus Honored

Percy C. Magnus, president of Magnus, Mabee & Reynard, Inc., New York, perfuming and flavoring materials firm, was honored at a testimonial dinner sponsored by the Association of Manufacturers of Confectionery and Chocolate, held Feb. 9, at the Hotel Biltmore, New York.

—★—

New Pennsalt Newsletter

Pennsalt Sanitation Newsletter, prepared by Pennsalt Chemicals Corp., Philadelphia, B-K department's technical service staff, has drawn favorable response from government agency sanitarians, dairy plant fieldmen, universities, vocational agricultural teachers, and department of health agents. Requests for additional copies of the newsletter were received from people in 38 states, the District of Columbia and a number of Canadian provinces, Pennsalt announced.

C-P Net, Sales Dip in '60

Net income of Colgate-Palmolive Co., New York, in 1960 declined to $21,183,000 from $25,287,000 in 1959, it was announced recently. Sales of the company were $576,326,000, as compared with $581,982,000 in 1959. Earnings per share of common stock, for 1960, were $2.53, compared with $3.11 a share in 1959.

—★—

New Wax Specifications

The American Wax Importers and Refiners Association, Inc., New York, has established specifications on pure carnauba, candelilla and ouricury waxes based on certain prescribed wax sampling and test methods. These may be obtained by writing to the association at 225 West 34th St., New York 1, N.Y.

—★—

Tentative Wax Test

American Society for Testing Materials Committee D-21 on Wax Polishes and Related Materials is submitting for publication as tentative, proposed methods of test for measuring the static coefficient of friction of waxed floor surfaces, it was reported recently.

New methods in preparation cover the determination of silicones in solvent type wax polishes. A new recommended practice for maintaining a wax surface on vinyl asbestos tile has been developed. The committee hopes to develop such recommendations for a variety of floor surfaces. One for asphalt tile was completed recently and others are said to be in preparation.

Committee D-21 will hold its next meeting in New York, in December 1961.

Fred H. Deindoerfer recently joined Industrial Biochemicals, Inc., Edison, N. J., as technical director in charge of research and production. He continues as a lecturer in chemical engineering at the University of Pennsylvania.

—★—

Otto F. Raiman Retires

Otto F. Raiman, after almost 50 years in the tallow and grease business, the last 28 with Davidson Commission Co., Chicago, has retired, it was announced recently. He is succeeded at Davidson by George Lewis.

—★—

New Industrial Herbicide

United States Borax & Chemical Corp., New York, recently introduced a new industrial herbicide, "Ureabor 31," said to have a wider range of weed killing potency. According to company officials it provides greater vegetation control of marginal weed species, such as dandelion, plantain, chicory, daisy, Bouncing Bet, dock, thistle and a number of woody vines and shrubs. The new formulation is available in granular form. Developed specifically for industrial use, "Ureabor 31" is said to kill fire hazardous weeds in a single treatment and provide maintenance-free surface for a year or longer. A more concentrated formulation, "Ureabor 62," is available to large consumers.

—★—

Maurice Maubert Dies

Maurice Maubert, president and director general of P. Robertet et Cie., Grasse, France, perfuming materials firm, died March 6, in Grasse. M. Maubert, who was a Chevalier de la Legion d'Honneur, was in his 73rd year. The firm, with which he had been associated for over 50 years, was founded in 1850 by his great-uncle. An American branch, P. Robertet, Inc., is located in New York City. M. Maubert has two sons, Jean and Paul, who are executives of the firm.

P&G Appoints Moersdorf

Procter & Gamble Distributing Co., Cincinnati, recently announced the appointment of G. B.

G. B. Moersdorf

Moersdorf as eastern zone manager in its bulk soap department. Mr. Moersdorf, headquartered in Summit, N. J., assumes the position left vacant by the death of H. J. Kenney in October, 1960.

Mr. Moersdorf was formerly in the case soap department for two years, prior to being transferred to bulk soap.

—★—

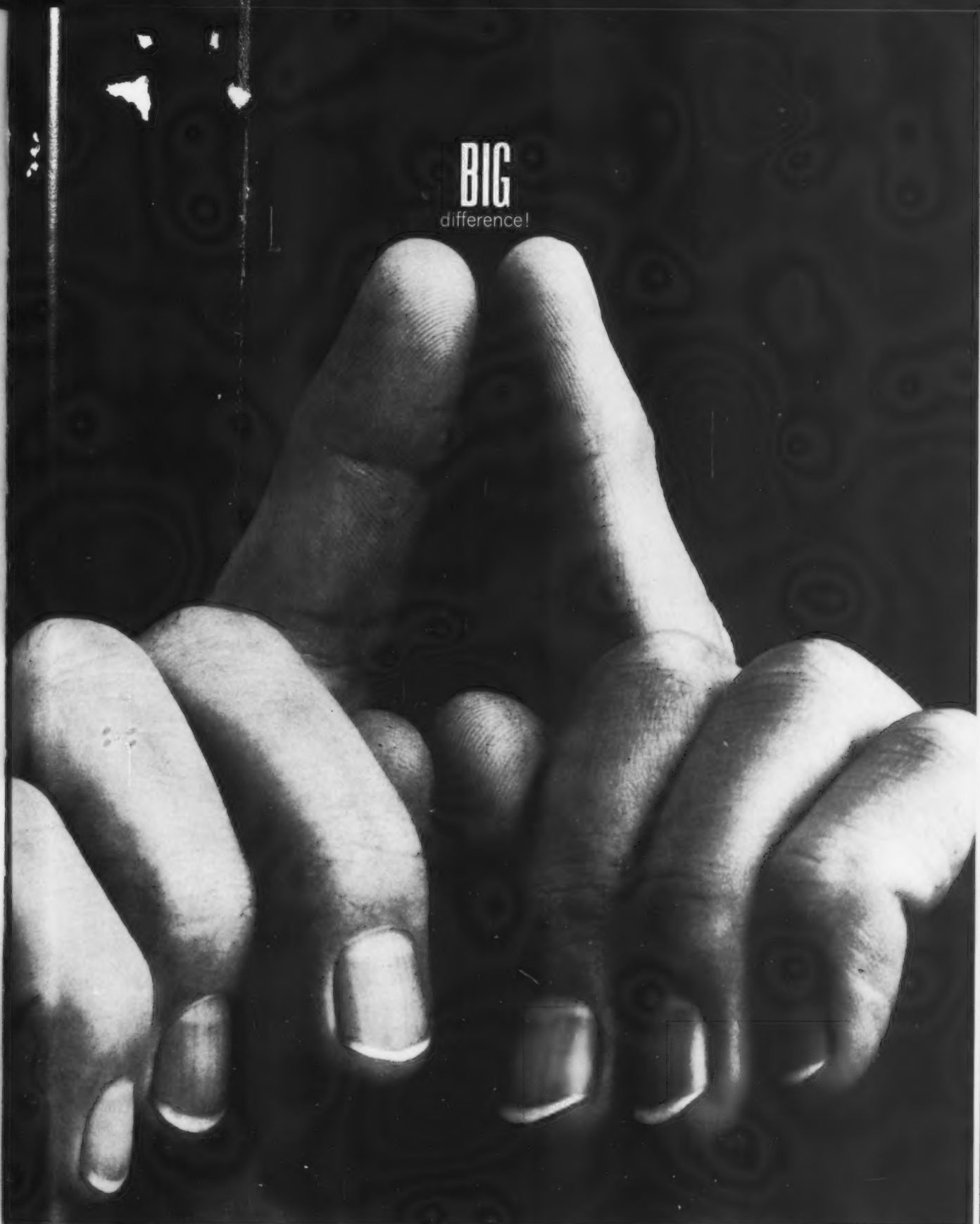
Economics Earnings Up

Economics Laboratory, Inc., St. Paul, Minn., recently reported net sales for the final six months of 1960 rose to $12,215,348, as compared with $10,947,000, for the same period in 1959. Net income for 1960 was $311,888, up from the 1959 total of $274,486. Earnings per share rose from 55 cents in 1959 to 63 cents in 1960.

—★—

Nelson Gen. Mills Rep.

Quentin E. Nelson has been appointed sales representative for technical soybean and safflower oils and lecithins produced by General Mills' oilseeds division, Minneapolis, Minn., it was announced recently. His territory includes Texas, Louisiana, Mississippi, Arkansas, and Oklahoma. Mr. Nelson has had 12 years of technical sales and service experience handling solvents, resins, driers, vehicles, naval stores, pigments, oil, paints, and plastic raw materials.

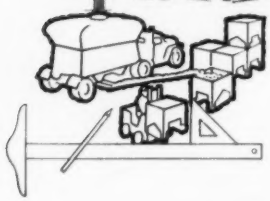


A pianist strikes a single wrong note and there is musical discord. A perfume contains a scintilla too much of a fragrance accent and there is fragrance discord. This is the little difference that makes all the difference in the product you are selling. Thirty-eight years of working with perfume oils have taught Felton when so much is too much in creating fragrances. Let the man from Felton help you win more customers with a fragrance that pleases every time and all the time! Plan to get in touch with him today. Felton Chemical Company, Incorporated, 599 Johnson Ave., Brooklyn 37, N.Y.

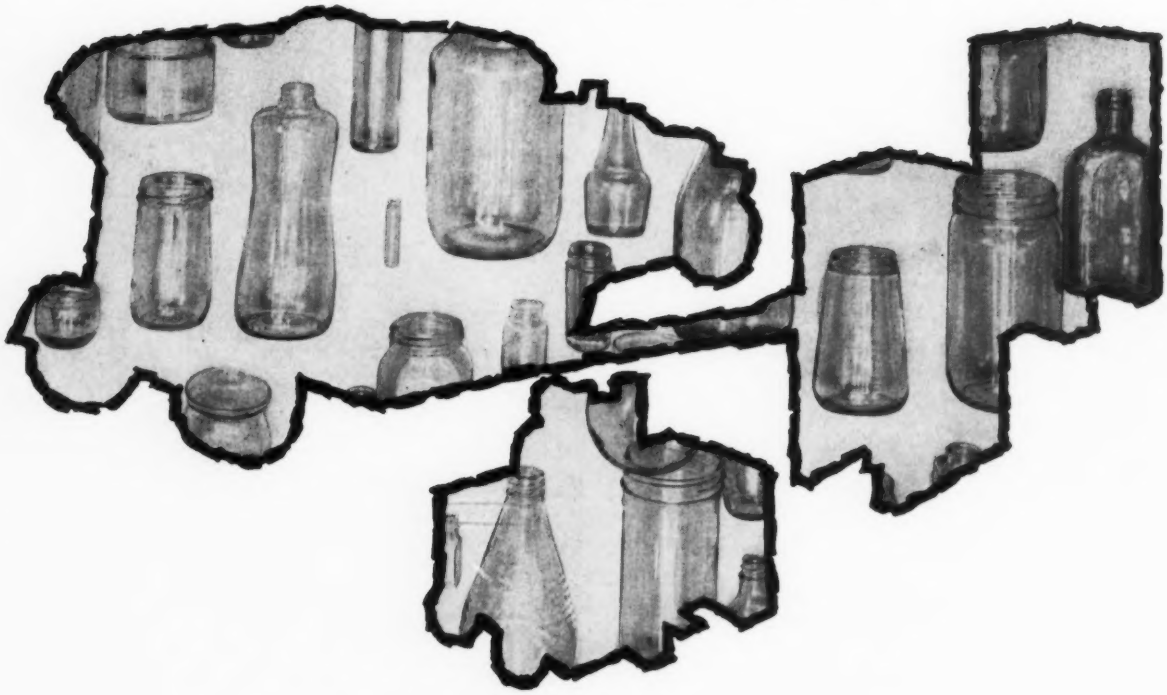
Felton

WEST END

advance planning



OF SODA ASH HANDLING SYSTEMS ANTICIPATES INDUSTRY'S GROWING NEEDS



WEST END is constantly developing new techniques for more efficient and economical handling of soda ash designed to customers' individual requirements. A current West End project involving bulk and semi-bulk unloading and handling systems enables many users of packaged soda ash to benefit from lower bulk prices and reduce their in-plant handling costs.

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Ultrawet 60L, like all members of the Atlantic Ultrawet family, is characterized by excellent solubility and extremely low unsulfonated oil content. It has outstanding detergency, foam, wetting speed and surface tension reducing properties. You will find Ultrawet 60L exceptionally versatile in formulation.

A VERSATILE ALKYL ARYL SULFONATE

Discuss your formulation problems with an Atlantic sales engineer. He is a graduate chemist or chemical engineer, and will be glad to assist you by providing the latest information available for improving products or processes, in the development of new applications or devising ways to cut production costs. For more information, write: Chemicals Division, The Atlantic Refining Company, 260 South Broad Street, Philadelphia 1, Pa.

Philadelphia · Providence · Charlotte
Chicago · Los Angeles

In Canada: Naugatuck Chemicals Division of Dominion Rubber Company, Ltd.

In Europe: Atlantic Chemicals SAB, Antwerp, Belgium

In South America: Atlantic Refining Company of Brazil, Rio de Janeiro

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(Trimethyl Undecylic Aldehyde)

Veronol is an intense Aldehyde,
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Excellent for top notes of Aldehydic nature
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Very stable, Veronol will add character
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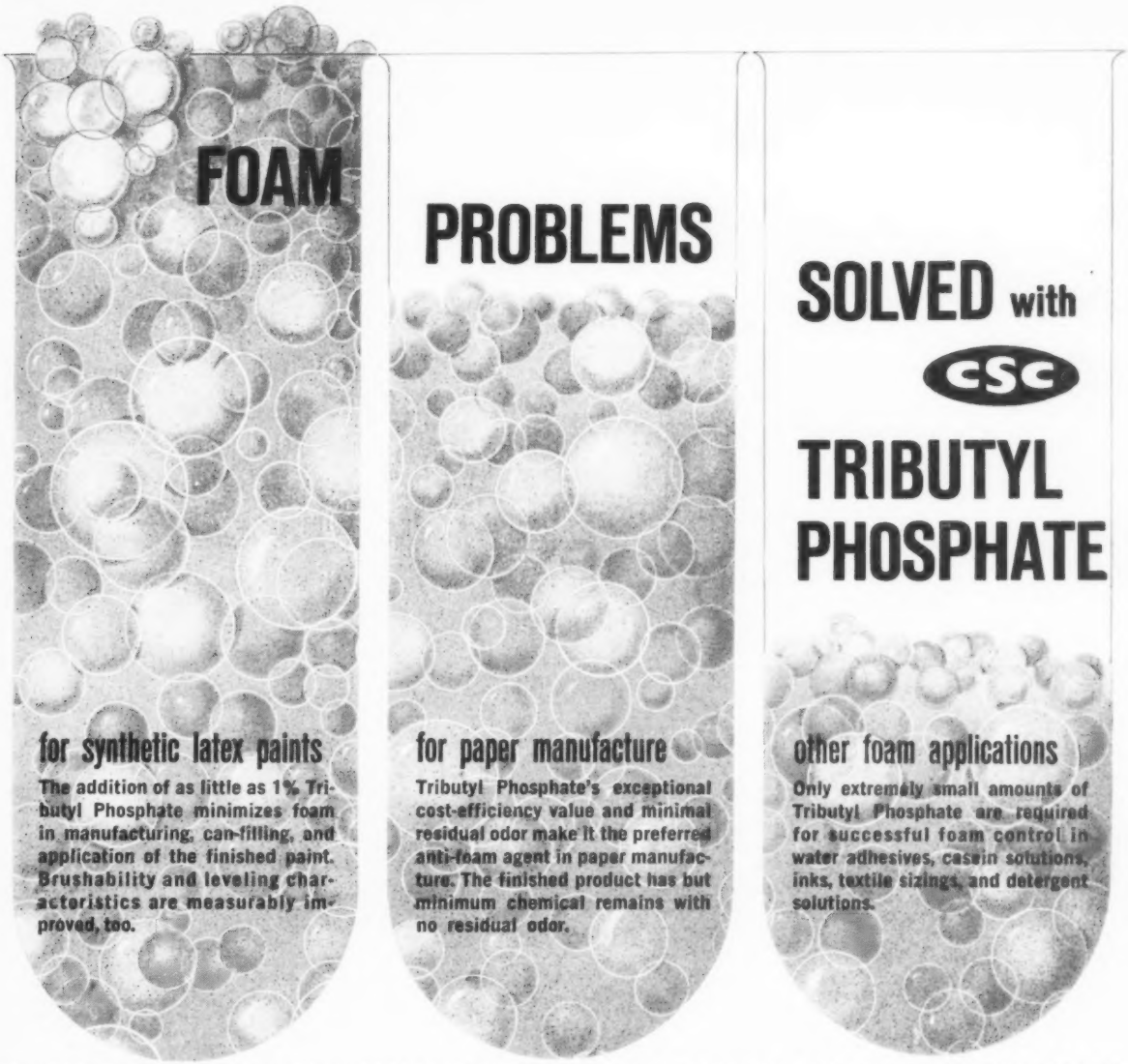
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The addition of as little as 1% Tributyl Phosphate minimizes foam in manufacturing, can-filling, and application of the finished paint. Brushability and leveling characteristics are measurably improved, too.
for paper manufacture
Tributyl Phosphate's exceptional cost-efficiency value and minimal residual odor make it the preferred anti-foam agent in paper manufacture. The finished product has but minimum chemical remains with no residual odor.
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Only extremely small amounts of Tributyl Phosphate are required for successful foam control in water adhesives, casein solutions, inks, textile sizings, and detergent solutions.

PHYSICAL PROPERTIES

Tributyl Phosphate is colorless, odorless . . . miscible with most common organic solvents, and is an excellent solvent for a great variety of other materials. It has a surprisingly low melting point for such a high-boiling liquid.

Specifications:

Specific Gravity 20/20°C	0.977 - 0.979
Acidity (as phosphoric acid)	0.01% (by weight) maximum
Color, APHA	15 maximum
Moisture, Karl Fischer	0.3% maximum
Free Butanol	0.2% maximum
Appearance	Clear and free of suspended matter

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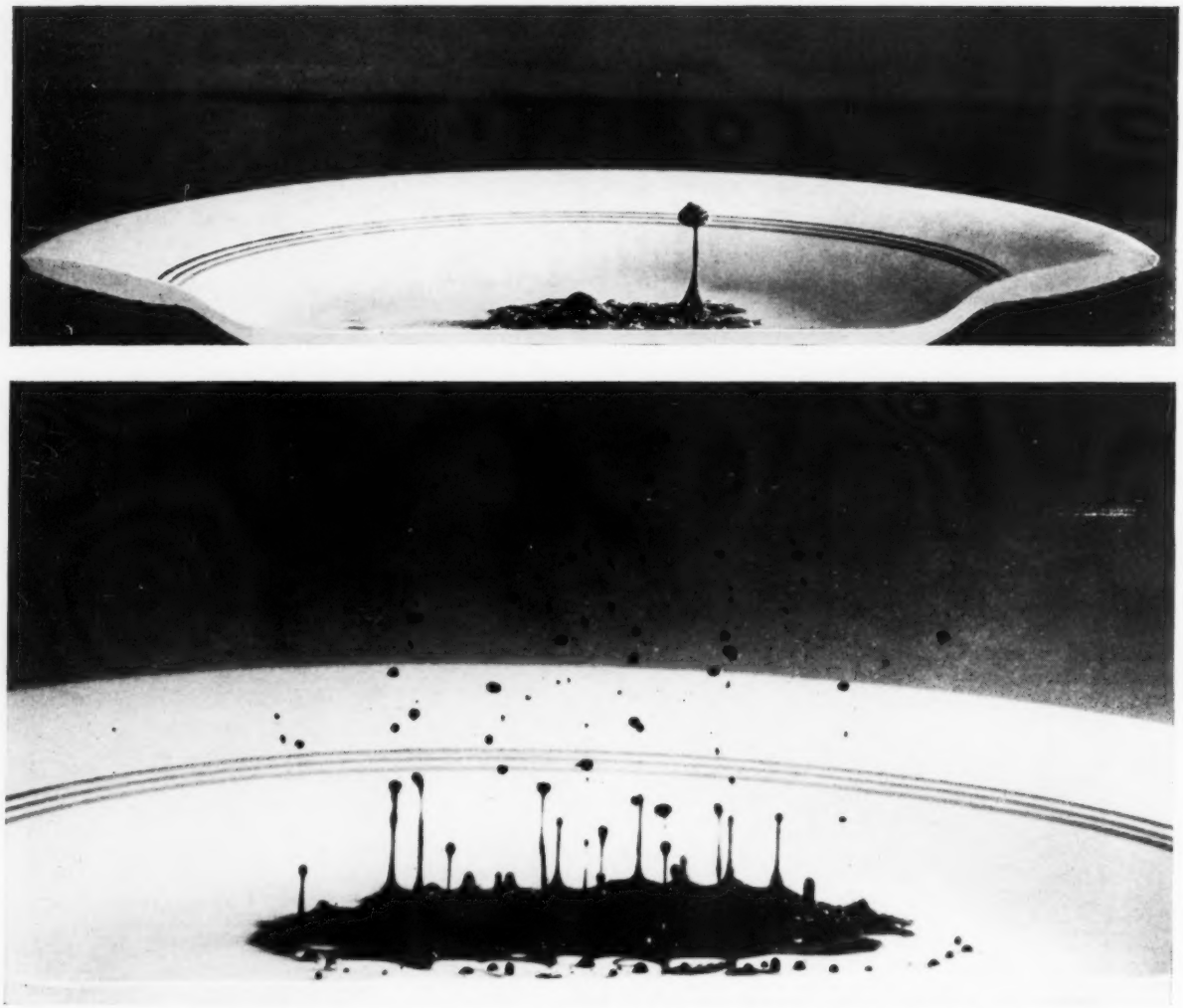

Demonstrated here is the dramatic difference achieved in removal of a synthetic soil when a surface-active agent is used. Top photo shows the slow, sluggish lifting of soil produced by warm water alone. Photo below shows how the addition of Sulframin® alkyl aryl sulfonate reduces surface tension, speeds soil removal, disperses and emulsifies soil particles to prevent redeposition and improve cleaning efficiency.

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Your own experience tells you that selecting the right components for a good detergent or other surface-active product is no simple task. As many as eight or ten components may be required, depending on the task to be performed and the variety of desired sales appeals.

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As a start, send for our new master chart, "Ultra Surface Active Agents"—it's packed with useful information.

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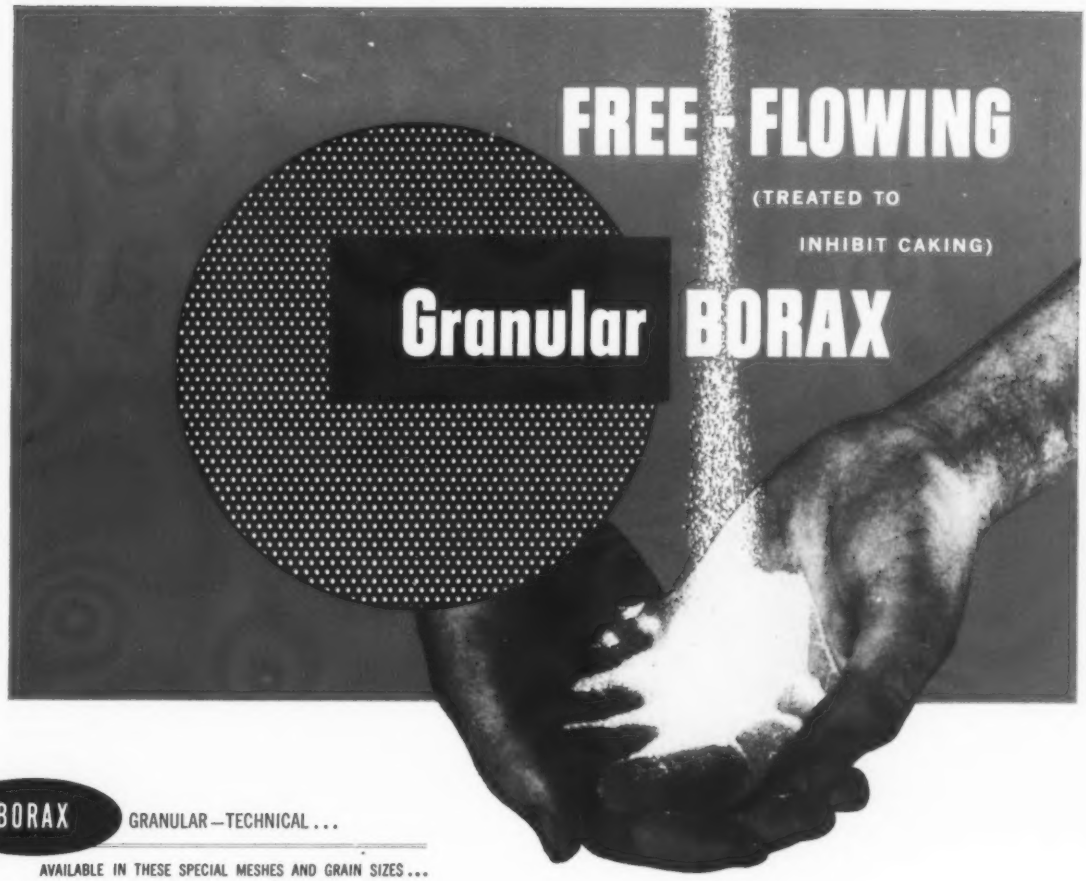

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AVAILABLE IN THESE SPECIAL MESHES AND GRAIN SIZES . . .

Name & Screen Designation	Typical Particle Size Range U. S. Standard Sieve No.		Screen Specification U. S. Standard Sieve No. When Packed	
Granular 8/40 (Special Mesh)	+ 8 + 40	Nil 96.8%	+ 45	min. 95%
Granular 8/60 (Special Mesh)	+ 8 + 60	Nil 80.0%	+ 8 +100	none min. 90%
Granular 30/60 (Special Mesh)	+ 30 + 60	0.5% 69.8%	+ 30 +100	max. 1% min. 80%
Granular 30/70 (Special Mesh)	+ 30 + 70	0.3% 71.0%	+ 30 + 40	max. 1% max. 20%
Granular 30/80 (Special Mesh)	+ 30 + 80	0.8% 76.6%	+ 30	max. 1%
Granular 30/100 (Special Mesh)	+ 30 +100	Nil 86.7%	+ 33 +100	none min. 85%
Granular 40/100 (Special Mesh)	+ 40 +100	Nil 89.0%	+ 40 +100	max. 0.5% min. 88%
Granular 40/140 (Special Mesh)	+ 40 +140	0.1% 88.8%	+ 35 +100	none min. 50%
Granular 40/200 (Special Mesh)	+ 40 +200	0.1% 84.1%	+ 30	none
Granular 60/200 (Special Mesh)	+ 60 +200	0.1% 66.7%	+ 60	max. 1%
Granular 80/200 (Special Mesh)	+ 80 +200	2.0% 67.6%	+ 60 + 80	none max. 5%

Powdered Hand Soaps are better performers when borax is part of their make-up. They work better in any water — cut grease quicker — and feel smoother. Our granular borax is free-flowing and 100% soluble. This material is now available to you in any of the many special uniform meshes listed at left. Samples, bulletins, or technical advice can be obtained from the sales office nearest to you. Write today!

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Hooker, with plants at three locations, can provide ample supplies of phosphates. These products are of high purity and are available in both bulk and in bags. Typical of Hooker quality is our sodium tripolyphosphate, 98% pure—highest in the industry.

As a prime producer of sodium tripolyphosphate, tetrasodium pyrophosphate, trisodium phosphate and tetrapotassium pyrophosphate, Hooker is in a unique position to meet the needs of soap and detergent manufacturers anywhere in the country.

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No matter how you compound your own product, you'll find it advantageous to use Hooker phosphates. If your product is prepared as a slurry and then spray-dried in your own tower, you get the advantage of faster dissolving without lengthy agitation.

CLEARER SOLUTIONS. Where color is important, Hooker's virtually haze-free phosphates meet exacting requirements.

DUST FREE. Hooker's sodium tripolyphosphate and tetrasodium pyrophosphate are freer from dust because they are spray-dried into hollow, ball-like particles. There are no sharp edges to break or crumble. Your own workmen and those of your customers will be spared the annoyance of phosphate dust. Also available in regular density, as are sodium hexametaphosphate and trisodium phosphate.

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MORE SUDS FOR YOUR MONEY

HD-90 helps you to build more suds into your detergent products than any other material at a competitive price. And more sudsing power means greater consumer acceptance.

HD-90 works fine even in hot, humid weather: all-weather protection to keep production rolling along in high gear. All-weather protection for your products, too.

HD-90 is purer—contains more active ingredient and less sulfate—it's hardworking, yet odorless and whiter in color. HD-90 is dust-free and dry flowing.

The uniqueness of Pilot's new standard of purity is in the *Cold Processing:* eliminated are the undesirable characteristics; built in are the cleansing and foaming character.

HD-90 has greater versatility as a result of its higher concentration, an advantage in formulating: *Automotive Cleaners, Dishwashing Compounds, Household Cleaners, Steam Cleaners, Bubble Baths, etc.*

For products with the highest sudsing and cleansing power for your money—investigate Pilot HD-90. Packed in polyethylene-lined fibre drums and 5-ply paper bags. Formulas and samples yours for the asking. Write:

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Basic Processors of Hydrocarbons for
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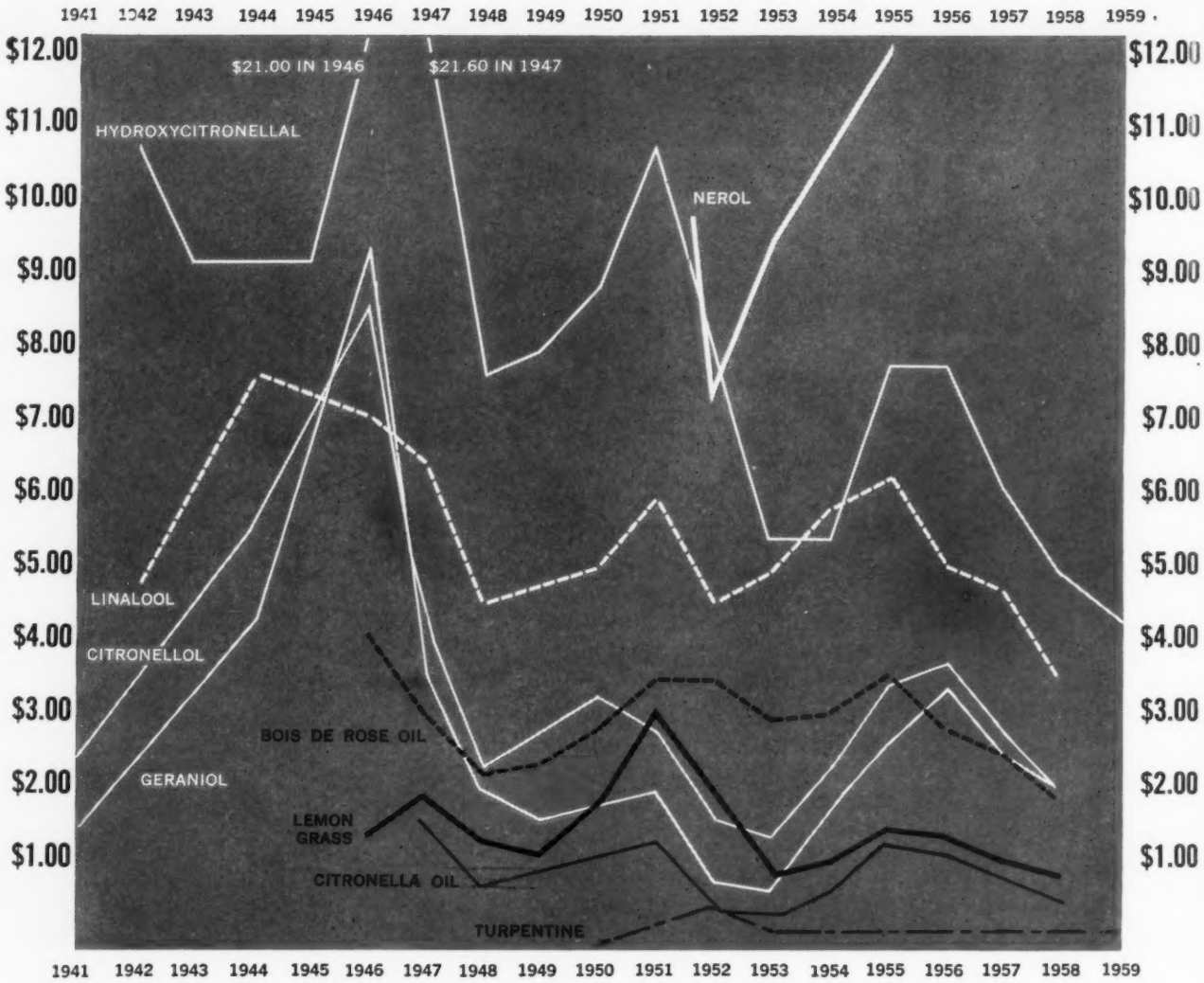

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as the editor sees it...

RECORD SALES

Close to four and one-half billion pounds of soap and synthetic detergents — another record —were sold in 1960 by members of the Soap Association. These figures do not include scouring cleansers which add another 375 million pounds to the whopping total for 1960. Soap and detergent sales last year rose another 2.3 per cent in volume over those of 1959, when the previous sales record was racked up.

Detergents expanded their hold on the market with a 3.5 per cent gain in tonnage over 1959, and they now represent 75.8 per cent of combined sales of soap and synthetic detergents. Helping boost total sales of synthetics were the liquid variety which, in 1960, grew by a lusty 14 per cent.

Soap sales of just over one billion pounds last year slipped .003 per cent under the 1959 figure. Gains in the soap category last year included toilet soaps, up 2.8 per cent; shampoos, ahead 7.9 per cent, and liquid soaps, increased 12.5 per cent.

In normal times we might conclude by saying that these figures are eminently satisfactory and the industry should keep up the good work. But today . . .

* * * * * *

NEW APPROACH

While the 1960 soap-synthetic detergent sales figures are satisfactory, they should not be grounds for complacency in what appear to be the difficult days ahead. The braking of industrial activity which began late last year and has continued through the first two months of 1961 is bound to have its effect on sales. After all, the unemployed are not concerned with clean work clothes.

On the other hand, let's not forget the millions who are working, and at good wages. They should provide the industry with the encouragement it needs to offset the gloomier side of the economic picture. Above all, as in past times of economic anxiety, let's not put aside the tools that have brought us to the record levels of sales of soaps and detergents. Rather than reducing efforts in advertising, sales promotion, marketing, and new products, why not expand, or at least maintain these programs, but with a new approach or aim that is more in keeping with the times?

* * * * * *

DILEMMA

The financial plight of a number of agricultural states is having repercussions on producers of pesticides. In order to raise more money to meet the cost of administering present economic poisons laws three, and possibly four, states have come up with a new wrinkle in revenue raising. Bills under consideration in three of these states would provide for licensing, with a fee, of course, for dealers in pesticides.

The alternative to dealer licensing would be higher product registration fees paid directly by manufacturers. In the case of one state the jump would be substantial: from $5 to $15 per brand.

Although pesticide manufacturers, naturally, would be unhappy about an increase in registration fees paid by them, they are overwhelmingly opposed to states registering dealers. The reasons for this include the fact that probably manufacturers would wind up paying dealers' registration fees anyway, and more important, some dealers would simply drop the sale of pesticides rather than have to go through the additional rigamarole of filling out still more government forms.

Pesticide manufacturers find themselves resting uncomfortably on the horns of a dilemma. While, no satisfactory explanation has been advanced as to why more money is needed by the states at this time, it would seem the increase in registration fees paid by manufacturers is the less painful horn of the dilemma. If they go along with a scheme to boost registration fees,

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To obtain a light color in any product, it is easier to start with white or colorless basic ingredients. It's costly and often impossible to remove color later. Emery gives you the colorless raw materials you need. — Emersol® 233 LL Oleic Acid and Emersol 221 Low Titer White Oleic Acid.

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COLOR SPECIFICATIONS	Maximum Color		Maximum Color Stability	
	Photo. Index	Lovibond 5¼" (Y/R)	Photo. Index	Lovibond 5¼" (Y/R)
Emersol 233 LL Oleic Acid	11/0.5	3/0.5	32/4.5	10/3
Emersol 221 Low Titer White Oleic Acid	15/0.5	5.0/0.5	51/10.5	20/7

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pesticide makers should insist that the advances be reasonable and in keeping with today's economic conditions. Let the states tailor their enforcement costs to the income cloth with which they have to work.

* * * * * *

WAX TRENDS

Makers of floor finishes for industrial and home use have solid reasons to be encouraged. Evidence is mounting that the market for their products, now large and growing, is due for further expansion. Although home building is expected to slow down somewhat this year, industrial building (plants, schools, hospitals, offices, etc.) will continue at a near-record rate in the year ahead. This is good news since experience shows that to prolong the life and maintain the beauty of new buildings, they are given much more care than older units. This means even greater sales of floor cleaners, polishes, waxes, strippers, sealers and the like. All of which is music to the ears of chemical specialties makers in those fields.

On the home front, it would appear that Mrs. McGuff has become disenchanted with her wall-to-wall carpeting and is replacing it with rugs, oriental or otherwise. High cost, indifferent wearing qualities, and expensive professional cleaning have contributed to Mrs. MacGuff's change of heart concerning the wall-to-wall stuff. If this trend assumes national proportions it could result in a big boost in sales of products that will be required to beautify and maintain the considerable new area of exposed flooring. We imagine manufacturers of floor products will know how to capitalize on this situation.

* * * * * *

DECISION

Aerosol loaders and marketers recently received their second legal jolt in the decade and a half since the introduction of pressure packages. In this case, a federal district court upheld the validity of a patent covering the use of PVP and co-polymers in aerosol hair sprays. Since the decision will be appealed, the case could follow the legal route of the aerosol shave cream patent litigation that was finally decided in the U. S. Supreme Court.

The present case, apart from the fact that it involves the largest selling type aerosol product, like its earlier counterpart, could have an important bearing on the future development of aerosol products. Probably its immediate effect will be to stimulate interest on the part of other hair spray producers in entering into licensing agreements with the patent owner. Undoubtedly, the search for a replacement for PVP will be intensified, and hair spray reformulation will be given top priority. Additionally, and this depends to a large extent on whether higher courts uphold the validity of the patent, greater respect will be shown from now on by aerosol producers towards patent developments in pressure packaging. A more sympathetic interest in licensing arrangements could also result.

At this point we imagine that everyone who makes or markets aerosol products, whether or not they are hair sprays, will be watching with considerable interest future legal developments in this case.

* * * * * *

BUTTON, BUTTON

The "panic button" which harassed management pushes in moments of real or imagined crisis seems to have given way to a new and deadlier one. For lack of a better name, we refer to it as the "stupidity button." As the recession deepens this new mythical gadget of management is used more often.

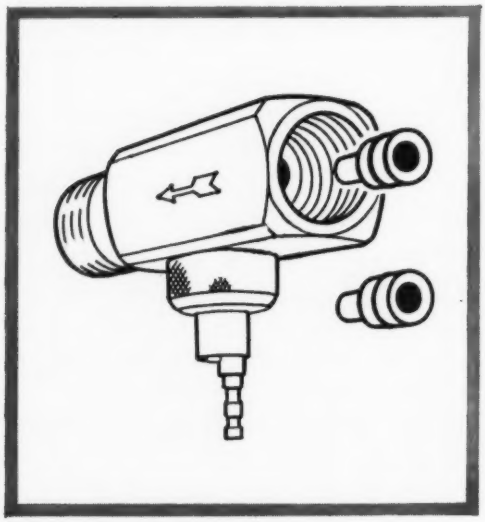
The special function of our newest button is to find ways to cut costs. During a year in which the profit to sales ratio went hay-wire this button was pressed often to bring into being committees on cutting down expenses. Their recommendations included such gems as eliminating paper cups at drinking fountains. Lately we read of store windows being washed three times a week instead of five, floors being waxed less frequently than usual, etc., etc.

If expenses are getting out of hand, why not use some common sense in remedying the situation? Take a look at the really big expenditures and determine where they can be pared. Let's not waste time on paper clips, paper cups and window washing. Let's lay off the "stupidity button."

MEET A NEAT LITTLE NUMBER... MODEL #224

Quick . . . jot it down in your little blue book. New Dema-designed rinse injector wants to be a friend of every dish washing machine, and a big bit more.

MODEL #224 plays no favorites . . . exclusive 2 interchangeable water nozzles match the injector to the machine regardless of water flow and pressure, permitting installation on all dishwashing machines, single tank, rack type conveyor, conveyor type.



A breeze to install . . . anywhere along the final rinse line . . . requires no costly electrical wiring, special fittings or alignments. #224 is exact . . . injects rinse additive in perfect proportion to rinse water flow. Flow meter clearly indicates rate of injection. As for operation . . . #224 "accentuates the positive" . . . injection rates adjust to high or low water flow. A set of two hand interchangeable water nozzles further insures optimum operation . . . by matching the injector capacity to the individual machine. Now, note these added features . . . further guarantees of economy and time-saving operation:

- Rinse additive can be replaced while machine is in operation.
- Bottle holder adjusts to sizes up to one quart.
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- Construction is completely corrosion-resistant . . . with no breakable, moving parts.

Come, let Dema introduce you to this wonderful new friend . . . Model #224. Why not today?

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as the reader sees it...

Surfactant Papers

Editor:

In the November, 1960 issue of *Soap and Chemical Specialties,* on page 47, there is a brief mention of two papers which were read during the detergent session at the fall meeting of the American Oil Chemists' Society, one on "Surfactant Analysis," by Dr. Rosen, the other on "Cryoscopic Forces in Detergency," by Dr. Foster D. Snell.

If these papers have been printed, would it be possible for you to forward to me two copies of each at the below address.

S. C. G. Moon,
Technical Manager,
Magnus Chemical Co., Pty. Ltd.
Leichhardt, N.S.W.,
Australia

We have asked the editor of the "Journal of the American Oil Chemists' Society" to forward publication dates of these two papers to Mr. Moon. Ed.

★

Hot News

Editor:

Today we received the January issue of *Soap and Chemical Specialties* . . . Three-fourths of page 175 of the issue was in charred ashes. Did you have an undesired fire?

R. W. Mandel
Ray-Del Chemical Co.
Seattle, Wash.

Probably it was some red hot news on page 175 that caused all the trouble. —Ed.

★

Reprints to Mohammed

Editor:

Please send me a reprint of the article, "Production of Washing Powders Without Spray Drying," by A. Davidsohn which appeared in the May and June, 1960 issues of *Soap and Chemical Specialties.*

If there are no reprints, please send me copies of the magazine in which the article was published.

Mohammed S. Jaber
Jericho,
Jordan

We have sent Mr. Jaber a set of tear sheets. Interestingly enough, his letter was addressed to "Soap Journal, New York," and was delivered by the Post Office to the New York "Journal American." The "Journal American" forwarded the letter to us. Ed.

★

"Reminder" Stickers

Olin Mathieson Chemical Corp., Baltimore, in an effort to aid the National Agricultural Chemical Association's "Safe Use" program, is making available, free of charge, "reminder" stickers (in reasonable quantities) to all who can use them.

The stickers, 1¼ x 2⅛ inches, are large enough to be easily read, yet small enough to be applied to letterheads and invoices as well as to product packages. Printed in red on a yellow background are the words: "Use Pesticides Properly, Follow Label Directions." The stickers may be obtained by writing to the headquarters of the Chemicals Division of Olin Mathieson, Mathieson Bldg., Baltimore, or district offices.

The NAC program, which is largely educational, was set in motion by the recent Food and Drug Administration studies of the toxic effects of some agricultural chemicals on food. The program is being well received, as evidenced by many requests for the stickers, with more than 10,000 of them having been distributed.

★

DuBois Appoints Sanner

Appointment of W. C. Sanner as director of institutional sales for DuBois Chemicals, Inc., Cincinnati, was announced recently in a joint statement by Louis Lerner, president, and Charles A. DuBois, chairman.

Mr. Sanner has an extensive background in detergents, automatic controls, mechanical dishwashing equipment, and the services necessary in institutional food operation. He joined Economics Laboratory, Saint Paul, as a sales-service trainee in 1944. Prior to his recent appointment, he was director of the firm's institutional division in the U. S., and vice president of its Canadian operation.

TRIO OF SMILES: Bracketing Miss Linda Lackey of Forest, Miss., 1961 Maid of Cotton, at recent soap meeting in New York are Roy W. Peet, secretary-manager of the Association of American Soap & Glycrine Producers, and Elton I. ("Bud") Lewis, Jr., office manager of the soap association.

Nothing persuades like the fragrance impulse

Throughout the mist of ages and the span of time, the fragrance impulse has always influenced human beings. What timeless thoughts, what emotions are contained in a purposed scent! For the fragrance impulse persuades like a soundless language... speaks powerfully to our senses and moves us to action. How often the fragrance impulse, alone, tells which soap, what lotion, what spray our reaching hand should choose. Yet to create the fragrance impulse is an art. At Givaudan it is a combination of unrivaled knowledge with tremendous resources in perfume chemistry... and an imaginative understanding of the changing desires of human beings. If you would like the fragrance impulse to work for you, come to Givaudan, where creativity comes first. No one in the world has done so much to add to the meaning of things through fragrance.

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ORVUS AB GRANULES. A neutral synthetic detergent, wetting and emulsifying agent of the 40% active sodium alkyl aryl sulfonate type. A white spray-dried product that can be used effectively in the blending of bubble baths, car body shampoo, dishwashing compounds, dairy cleaners, insecticides, laundry detergents, rug and upholstery cleaners.
ORVUS WA PASTE. A neutral synthetic detergent and wetting agent whose active ingredient is mainly sodium lauryl sulfate. Excellent sudsing, wetting, dispersing and penetrating properties. Ideal for paste cream and liquid cream shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, glass cleaners, and especially effective for rug and upholstery cleaners.
AMBER GRANULES. A neutral 88%, 42°C. titer type soap of outstanding purity and uniformity. Well suited for the preparation of paste or gelled products because of its high titer. Its granular form makes it ideal for blending powdered products. Excellent for the compounding of hand cleaners, paste cleaners, polishes, and lubricants.
ORVUS ES PASTE. A specially developed synthetic detergent whose active ingredient is mainly modified sodium lauryl sulfate. Offers exceptional efficiency and stability over a wide range of operating conditions. Its excellent wetting, penetrating, sudsing, dispersing and emulsifying properties make it well suited for the preparation of liquid shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, car washes, emulsion cleaners.
Kyro EO KYRO EO. A neutral nonionic synthetic detergent of the 100% alkylphenol ethylene oxide condensate type. A clear light-colored liquid with a clean, pleasant odor. Its superior detergent, wetting and emulsifying properties offer excellent performance in liquid detergents, sanitizer-detergents, self-emulsifying solvents, laundry detergents, glass, textile, and dairy cleaners, insecticides, and bottle washing compounds.
IVORY Beads IVORY BEADS. A medium titer, neutral spray-dried white soap of exceptional purity and quality. Well suited for compounding products where a mild but effective soap is required—hand soaps, polishes, protective creams, and dishwashing compounds.

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W. K. Griesinger, vice-chairman of the technical advisory council steering committee of the Association of American Soap & Glycerine Producers, prepared the sixth annual report of the research council of AASGP. The report is published in full beginning on page 48 of this issue. Mr. Griesinger is manager, applications research division, Atlantic Refining Co., Phila.

IT'S A SMALL WORLD

AND MARCHON SURFACTANTS PLAY A BIG PART IN IT

To him it's home; to people, water is either the world's least intoxicating drink or its most versatile cleaning agent—especially when assisted by Marchon surfactants.

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Marchon make a wide variety of anionic and non-ionic surface active agents. These include the series Empilan N.P. and O.P. which range from oil-soluble liquids to water-soluble solids. Several can be supplied from stock and many others are produced for special requirements. Why not write for data, samples or advice?

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Over the past five years, the rapid growth of liquid detergents of all types has revolutionized the raw material picture of the household detergent industry.

Photo courtesy Union Carbide Corp.

By Lester D. Berger, Jr.*,
Manager, Market Development, Chemicals, Union Carbide Chemicals Co., Division, Union Carbide Corp. New York

New trends in

Nonionic Surfactant Technology

TEN years ago, the fatty acid alkanolamides were the most important nonionic surface active agents. There were four major producers of polyethylene glycol-type nonionic surface active agents, and the most important type was the polyethylene glycol fatty acid ester. The total production in 1950 of all nonionic types was of the order of 70 million pounds.

By 1959, U. S. production of nonionic surface active agents had increased more than five fold over the 1950 level to a total of some 375 million pounds. Of this quantity, 100 million pounds were fatty acid alkanolamides, about 50 million pounds were polyethylene glycol fatty acid esters, and the balance — over 250 million pounds — consisted of products that were essentially small volume specialties 10 years ago. These include primarily the alkyl phenol-ethylene oxide adducts and the fatty alcohol-ethylene oxide adducts.

The greatest changes in nonionic surface active technology have involved the ethylene oxide adducts of various hydrophobic structures, of which the alkyl phenols and the fatty alcohols have become the most important. Five years ago the predominant polyethylene glycol ether nonionics were the adducts of octyl phenol and nonyl phenol. There was, in general, only a very limited understanding of the performance differences that one could expect from various nonionics in finished formulations. The formulator was guided primarily by considerations of the cloud point or solubility properties of the nonionic and its price. The principal uses of these types of nonionics were in the industrial field for emulsification, textile scouring, and heavy duty cleaning applications. The alkanolamides were widely used in the formulation of household detergent products, but there was only one major household product on the market which employed the polyethylene oxide ester of tall oil fatty acids as

*Paper presented during 34th annual meeting, Association of American Soap & Glycerine Producers, New York, Jan. 26, 1961.

the active detergent component. The alkyl phenol-ethylene oxide adducts were just beginning to find use in household products.

Growth of Liquids

Over the past five years, the rapid growth of light duty liquid detergents, all-purpose liquid household cleaners, and heavy duty liquid detergents has revolutionized the raw material picture of the household detergents industry. The household detergent manufacturer and formulator has not only developed techniques for using nonionic surface active agents more widely in his formulations, but he has also learned how to appraise and to apply small differences in properties and performance that result from minor structural changes in the surfactant molecule. For example, nonionics derived from octyl phenol and nonyl phenol are no longer as directly competitive as they were a few years ago. They now often find their way into different uses based on relatively small differences in properties and performance which the formulator has learned to evaluate and employ to his advantage. Within the last two years the use of dodecyl phenol as a nonionic raw material has become increasingly important. Nonionics derived from it have been found to have different and unique properties. I think it is safe to say that six years ago the economic importance of these property differences could not have been economically justified or even adequately measured. In the same vein, synthetic alcohols derived from the oxo process and synthetic straight chain alcohols derived from olefin polymerization are receiving increased attention as nonionic raw materials. Thus we see that we have both growth and change as major trends in the technology of nonionic surface active agents. Continued growth is anticipated and all nonionics will probably increase from a total of close to 400 million pounds in 1960 to a total of well over 500 million pounds by 1965.

Chemically, the basic commodity on which this growth is based is ethylene oxide. I think we all recognize the general trends in this commodity. Many of the major suppliers of nonionic surfactants have back-integrated by building captive ethylene oxide capacity. Conversely, industrial ethylene oxide producers have tended to enter the surface active agent market much more aggresively in recent years. The result has been an increasingly competitive market.

Why is this so? Well, let's first look at the make-up of the ethylene oxide market itself and see what is at stake. (Table 1) The interesting point is that in 1960 there was an estimated 1.6 billion pounds of ethylene oxide production capacity in the United States with an estimated market for only 1.44 billion pounds of product. This is certainly one strong motivating factor toward a highly competitive situation in the market for oxide derivatives. Based on recent trends and announcements of still greater expansions in ethylene oxide capacity to come, this trend is not likely to change. Note, however, that surfactant uses of ethylene oxide represent only 8.6 per cent of the total 1960 ethylene oxide consumption, and this is projected to grow to only about 10 per cent by 1965. In addition, we can roughly estimate that somewhat over half of this ethylene oxide requirement finds its way into household products, the balance going into industrial cleaners, emulsifiers, and other industrial uses.

Someone unfamiliar with our business might be fully justified, on the basis of these figures, in concluding that the suppliers of ethylene oxide probably look upon the household detergent market as a minor specialty portion of their future potential. I think we all recognize that this is not the case. An analysis of the reasons for the intense interest of basic ethylene oxide suppliers in the household detergent market, and of today's product situation, may permit us to suggest some trends that will govern the development of detergent technology in the years ahead.

There are several reasons why basic organic chemicals producers have a strong interest in the detergent market:

1) Synthetic surface active agents represent a major chemical market, totaling almost 1.5 billion pounds per year of organic chemicals. Basic chemical producers see this broadly as a major marketing area, in which they hope to develop new and large uses for new products.
2) There are now many producers of ethylene oxide, some of whom were formerly substantial buyers. This has inevitably led basic producers who were not in the nonionic business to think about integrating their product lines farther toward the ultimate consumer to strengthen their marketing position.
3) Many nonionic surface active agents are now well defined items of commerce. Quality standards and specifications for major uses are generally accepted throughout the industry. This tends to make these products attractive to the basic producer who wishes to diversify his product line.
4) The household detergent

Table I. Ethylene Oxide Requirements
(Millions of Pounds)

End Use	1950	1960 Estimate	1965 Estimate
Ethylene glycol	315	900	1,120
Nonionic surface active agents	25	125	180
Other glycols and glycol ethers	50	178	215
Miscellaneous	63	237	335
TOTAL	453	1,440	1,850

manufacturer and formulator is in a pretty competitive business, too. We have seen the structure of this market changed drastically as a result of the introduction of new consumer products. Thus, there is a continuing search for newer and better raw materials that may give the detergent supplier a new approach or a new competitive advantage in the constant battle for the favor of Madame Housewife. The basic chemical suppliers are not unaware of this interest in potential new products from their laboratories.

In this perspective, then, what trends may be anticipated in the applications of nonionic surface active agents to detergent technology? The following are some suggestions upon which I am sure all of you can enlarge:

1) *Broadening of Hydrophobe Technology:* Ethylene oxide is a very versatile and economic source of hydrophilic properties in a nonionic. Therefore it seems that major changes in nonionic surfactant technology will continue to occur in the hydrophobe area. The growing interest in synthetic alcohols from oxo and polyolefin sources is one example of this trend. Polymeric hydrophobe structures based on polypropylene oxide are the basis of nonionics offered by two major suppliers, and these are growing in importance. Further extension of this area of polymeric hydrophobe technology is highly probable.

2) *Improved Techniques For Product Evaluation:* I am sure all chemical suppliers who strive to develop chemical markets in the detergent industry have heard something like this statement — "We won't know whether the product is any good until we test market it." The successful pursuit of new and improved raw materials will depend on the continuing development of even better methods of raw material screening and product appraisal, both by detergent manufacturers and raw material suppliers. More intensive effort in this area of technology is a must if detergent manufacturers and suppliers are to work together intelligently on development problems. Compared with other fields of chemical use, such as plastics or coatings, for example, product development in the detergent field is still characterized primarily by an Edisonian problem solving approach. The competitive drive for new products will almost certainly accelerate the trend toward improved measuring and evaluating techniques in the next five years.

Modern control panel of a surfactant plant is good indicator of how the market for synthetic detergents has grown in the past 16 years.

Photo courtesy Union Carbide Corp.

3) *Supplier Technology:* Based on increasingly competitive markets for both raw materials and finished products, there will be a strong trend for alert suppliers to increase their technical effort and capabilities in the detergent field. This will be particularly true of the broadly integrated raw material manufacturer who seeks to strengthen his marketing position in the detergent industry. He will need to learn more about his customers' problems in order to bring his technical know-how to bear and guide his product development program along fruitful lines. The detergent manufacturer and formulator stands to benefit greatly from this trend. The degree to which individual companies benefit will depend on the skill and alertness of their technical groups in developing close working relationships with technical and development people in supplier organizations.

4) *New Product Trends:* New products in the nonionic surfactant area will continue to result from the trends outlined above. There will be a better understanding of the relationships of chemical structure to performance, which will probably lead to increasing numbers of nonionic surfactant products designed more and more for specific uses or particular fields of application. The displacement of some nonyl phenol-based nonionics by dodecyl phenol products is an example of this trend.

In addition, as more and more diverse types of detergent products are developed for the home and industrial market, chemicals not now thought of as detergent raw materials will find use in this field. Already we know of nonionic organic chemicals, that are not basically surfactants, finding their way in increasing volumes into detergent products. Here again, better methods of screening and product evaluation will have their effect, and the formulator who can apply original thinking to the appraisal of new raw materials may

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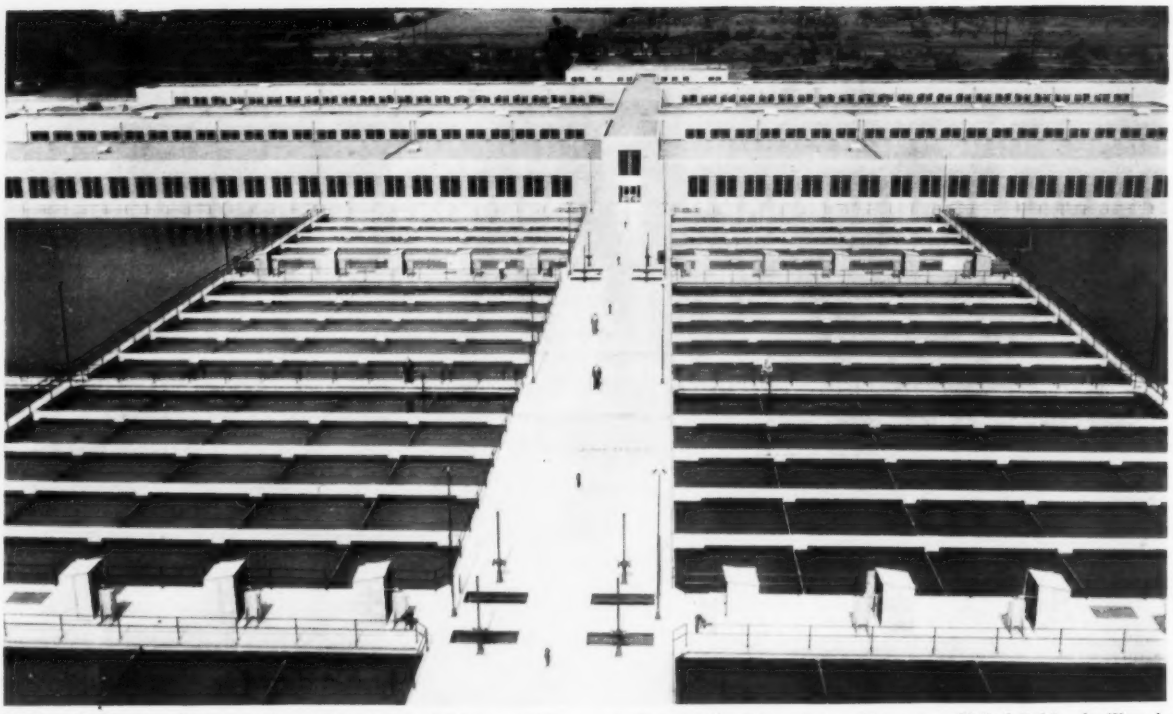

Mixing basins in foreground, sedimentation tanks on the right and left show in this overall view of the Torresdale water purification plant. The new Philadelphia facility is second largest in nation, most modern of its type.

Detergents in Sewage & Water

By W. K. Griesinger*,
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Philadelphia, Pa.

THIS is the sixth annual report of the research council of the Association of American Soap & Glycerine Producers on its research program directed toward achieving a better understanding of the effects of detergents in sewage treatment and water treatment plants. Previous reports have usually emphasized the achievements of the year under review. This year we are presenting instead a brief review of the entire program, in order to be able to trace for you the changes in emphasis that have occurred over the years and to discuss our present and proposed plans in the light of these developments.

In the early days of our program, it was decided to establish research grants at various universities in order to determine facts. This was desirable because too often the dramatic stories of foaming in sewage disposal plants presented conclusions which were based on speculation and not on sound scientific data. Accurate methods for quantitatively identifying alkyl benzene sulfonate in low concentrations were not available. Our member companies cooperated in the development of a precise analytical procedure based on infrared spectroscopy which has helped to clarify analytical questions in this area. One of the first questions we set out to answer was whether alkyl benzene sulfonate (ABS) is toxic to the bacteria that decompose organic matter in sewage disposal plants. In a research program carried out at MIT, under the direction of Professor Ross McKinney, it was shown conclusively that ABS is not toxic to the bacteria. They continue to decompose the organic matter present in sewage as effectively in the presence of ABS as they do in its absence. The misconception that ABS is harmful to bacteria still appears occasionally in print, but McKinney's work has generally been quite effective in clarifying this point.

The next logical question to ask is—do the bacteria metabolize ABS? This is much more difficult to answer. There is a tendency for water people to refer to detergents as "biologically hard" or "biologically soft." The situation is not that simple. Actually there are several questions that must be asked. To what extent and how rapidly do bacteria decompose ABS in the standard activated sludge sewage disposal plants? What are the major factors involved in the foaming observed in some sewage plants? How wide spread is the problem? What is the role, especially in water treatment plants, of

*Report presented at the 34th annual convention, Association of American Soap and Glycerine Producers, New York, Jan. 27.

Sixth annual report of research council of Soap Assn. aimed at achieving better understanding of effects of detergents in sewage and water treatment plants

Treatment Plants

polyphosphates used in built synthetic detergents?

The research committee, using funds supplied by association members, established research grants at a number of universities to seek answers to these questions.

The work at MIT established not only that ABS is not toxic to bacteria but also that numerous strains can grow on ABS. Conventional activated sludge sewage treatment removes more than half of the ABS present. Maximum removal of about 80 per cent can be obtained by a high solids complete mixing activated sludge system.

Maximum removals of over 80 per cent have been reported by efficient municipal plants. Changes in conventional plant design might improve this figure. The association sponsored a research program in this area which resulted in the building of an experimental unit at Cranston, Rhode Island. Unfortunately, the laboratory findings were only partially verified in the experimental unit, and the work cannot be judged a complete success. However, it is hoped that our limited success in this area will encourage others to take a deeper look at the mechanics of activated sludge plants and come up with improvements.

MIT's results on total ABS removal and on non-toxicity of ABS for bacteria were independently confirmed at the University of California by Professor P. H. McGauhey. Further work here showed continuous removal of ABS by frothing the effluent from activated sludge aeration tanks and skimming off the froth removed more than 90 per cent overall of the ABS present in raw sewage.

Economical disposal of the froth by burning or chemical collapse remains to be developed. This work has also attracted the interest of other investigators in the sewage field and we expect to hear of new approaches to the foam disposal problem in the not too distant future.

A questionnaire survey of activated sludge sewage treatment plants by Professors Rohlich and Polkowski at the University of Wisconsin to obtain information on operating conditions coincident with frothing, indicated that while frothing was often present, it did not affect plant efficiency. Wisconsin experiments showed this to be so. In addition to ABS, some of the important controlling factors in froth production are: low suspended solids, protein degradation products, temperatures above 70° F., high pH values and high aeration rates.

The project at the University of Illinois under Professor R. S. Englebrecht was concerned primarily with the phosphate builder component of household detergents. It showed that about one half of the total phosphate present in Illinois surface waters comes from drainage from agricultural lands, and that, in general, the phosphate concentrations in Illinois waters have no practical effect on water treatment. The apparent ABS levels, determined in a general survey of Illinois streams receiving sewage effluents, were, with only three exceptions in more than 20 samples, less than 0.2 ppm.

The Johns Hopkins University project, under the direction of Professor C. E. Renn, was instituted to develop a method for removing trace quantities of ABS from water supplies. Results indicated that, of the substances screened, activated carbon, commonly used by water treatment plants, was the most effective economical material for use when ABS concentrations might become high enough to be noticeable.

Froth caused by agitation of water containing synthetic detergents in recarbonation basin at the Chanute, Kansas, water treatment plant.

This technique also offers promise for lowering the ABS content of Laundermat effluents which are a nuisance in some areas not adequately equipped with waste disposal facilities.

The support of these research contracts over the years required approximately $300,000, but served the useful purpose of supplying factual data in areas where they were badly needed. These results have all been published.

At the completion of the university programs the emphasis of the Research Committee's activities gradually changed. The remainder of this report will discuss not only work supported by the association through the research committee, but also work carried out independently by some member companies, by the United States Public Health Service and by various other organizations.

Although this is a report to the association about the research committee activities, it has become increasingly apparent to us in recent years that we perform a valuable service for the Association by obtaining and analyzing data from many sources. Some of our plans in this field of activity will be discussed a little later in this report.

Toxicological Information

We are interested in the toxic properties of ABS because, if it is not harmful to living organisms, then the problem of its ultimate fate in water systems becomes relatively unimportant from a health standpoint. We recognize the aesthetic implication.

In some cases where data are needed but are simply not available, we still sponsor the necessary research. A good example of this combination of information gathering and research is presented by our toxicological studies. A considerable amount of information on evaluations of possible toxicity of ABS was scattered throughout the scientific literature. The studies were concerned primarily with acute toxicity, that is—single dose or short term feeding of the compound to experimental animals, as opposed to chronic toxicity studies based on long term feeding. This information was assembled and published. It showed that ABS, even at many times the levels which might be encountered in drinking water, did not adversely affect the animals.

Typical water treatment plant shown here serves small community in rural area. Sedimentation basin appears in foreground.

This publication has been very useful, and the association office has made reprints available to many people interested in the subject. In addition to this, two member companies sponsored two year feeding studies, using rats, to develop information about the possible chronic toxicity of ABS. Both of these have been published. These studies also showed no evidence of toxicity of ABS at many times the levels likely to be encountered. Although the results of these studies were quite clear cut, the committee decided to recommend a two year feeding study in dogs. This recommendation was based on the opinion of toxicologists, including those in the Food and Drug Administration that studies in two species—one of them not a rodent—are desirable in a complete toxicological investigation. The board of the association approved the committee's recommendation, and such a study has been initiated at an independent testing laboratory.

Another study which the committee carried out concerned taste and odor. Many times, statements have been made in the public press about taste and odor problems caused by ABS in drinking water. Certainly, ABS never occurs alone in drinking water.

If present, it is always accompanied by contaminants from domestic or industrial sources. There appeared to be no data in the literature about the taste or odor of ABS itself. Several laboratories therefore determined the level of ABS which could be detected by a panel on the basis of taste and odor.

Results varied somewhat, but all laboratories agreed that no taste or odor could be detected at ABS levels of 40-50 ppm which is several hundred times the average value found in a typical stream.

Ground Water Studies

One of the major shifts in emphasis in this program has been the increasing interest in ground water in recent years. In some areas of the country, specifically in rapidly growing suburban communities, houses have often been built on small lots with a well for the water supply and a septic tank for waste disposal on the same lot. It

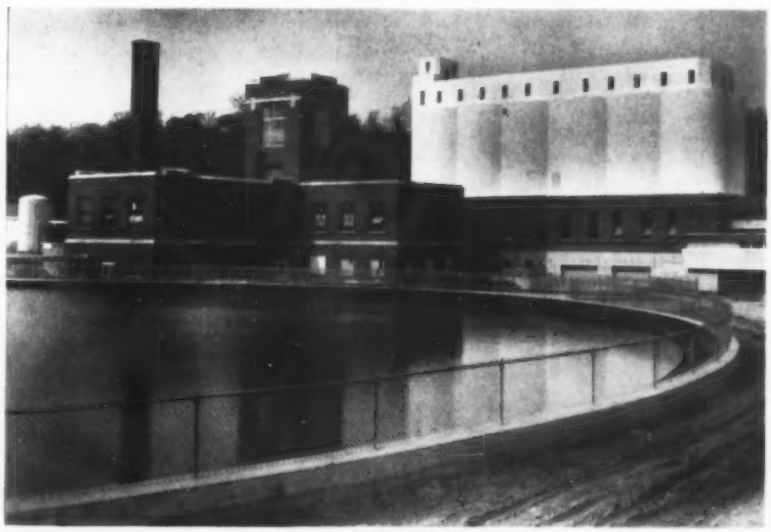
is not surprising that this has often led to gross contamination of drinking water. One of the first indications of this contamination has often been the tendency of the water to develop a slight unstable foam as it is drawn from the tap. This foam is caused partly, but not entirely, by synthetic detergent residues. Actually, as I indicated in my discussion of ABS toxicity, no public health hazard appears to be presented by the presence of the ABS itself, nor can reported cases of taste and odor contamination be attributed to the levels of ABS found in the water.

Other contaminants which accompany the ABS, however, may be a cause for concern. This situation has led to increased pressure on the part of local, state and national public health officers for the construction of municipal water supply and municipal sewage disposal plants. Even if detergents, which act as a useful indicator of other contamination, were completely eliminated from the household wastes, the cross contamination by other materials would continue.

Certain questions have been raised, however, which need careful research in order to be answered. One of these is—does the presence of ABS affect the rate at which contaminants migrate through the soil? Fortunately it was not necessary for the committee to establish a research program to answer this question since a study of this situation has been initiated at the Taft Center of the United States Public Health Service in Cincinnati. As part of our program of liaison with other researchers in the field, the committee met with the research people at the Taft Center and discussed their program. We will continue to maintain contact with this investigation. The Public Health Service will publish the results of this study when the work is completed.

To assist the committee in its investigations of the ground water situation and to maintain contact with local, state and federal public health authorities, we have retained as a consultant Professor Dietz, a former professor of sanitary engineering at the University of Illinois. To date, this work has consisted largely of on-the-spot investigations of reported instances of ground water contamination, in order to learn more about the effect of the soil type and of geological factors on underground migration of contaminants of all kinds. This work is still in the preliminary stages and we cannot give you a detailed report at this moment on the effects of the various factors. We hope in the course of the next year, however, that the work being carried out by the Public Health Service and by our committee will help considerably to clarify this situation.

Waterworks at Kansas City, Mo., with presedimentation basin in foreground. New chemical building completed in 1959 is shown on the right, heating boilers on left.



ABS in Drinking Waters

In view of the reported instances of contamination of drinking water, the question arises: How wide spread and how serious is the problem? This committee has therefore conducted nationwide investigations of the levels of ABS in drinking water. Preliminary information on the study was presented in last year's annual report. The study has now been completed and will soon be published. The survey embraced normal varieties of drinking water supplies and included 32 cities across the United States. Selection of the test cities was based on raw water source, geographical location, treatment method and population. The locations chosen represent roughly one-eighth of the population of the United States. Samples were taken in the summer (Series A) during the period in which normal rainfall and runoff are low, during early winter (Series B) when runoff is usually relatively low and in the spring (Series C) during the traditional high water period. During the period of sampling for Series B, the eastern seaboard was having unusually heavy rains with flooding in some areas. No excesses in weather were noted during the sampling for Series A and C.

The results can be summarized as follows:

Percent	
100	of the samples within 0.14 ppm. ABS
98	of the samples within 0.10 ppm. ABS
84	of the samples within 0.05 ppm. ABS
68	of the samples within 0.02 ppm. ABS
43	of the samples within 0.01 ppm. ABS

The ABS content during the three sampling periods indicates a relationship to stream flows as influenced by rainfall and runoff since the average ABS content for

(*Turn to Page* 103)

Earning a Position in Surfactants

A check-list of the principal considerations involved in marketing a new surface active agent

IF there are many ways to skin a cat, there are still more ways to market surfactants. The approach to be outlined in this paper is only one of many ways and should be of interest primarily to companies new in the field. Obviously companies successful in the field have already developed satisfactory methods.

In my opinion, the first and most important understanding for a company planning to market surface active agents is the fact that the field is extremely heterogeneous in practically all of its aspects:

1. The number of chemical configurations that have surfactant properties is very large.
2. The technology required for surfactant production ranges from extremely simple to moderately complex.
3. Over 50 industries annually use more than one million pounds of surfactants. Within those industries there are many individual uses and these are constantly changing so that any list claiming completeness would be obsolete by the time it was compiled.
4. Prices of major surfactants vary from 5¢ per pound to over $2.00 per pound of active agent.
5. The raw materials used in the surfactant industry include several petroleum derivatives, various fats and oils, by-products of the wood industry, special chemical intermediates, and practically everything else that a creative imagination can conceive.
6. The surfactant may be the principal ingredient of a final product, as in the case of shampoos, or it may be used in concentrations as low as a few parts per million, as in water flooding operations, or it may be used in some process from which it is eventually removed so that it does not even appear in the final product.
7. Companies supplying surfactants range in size from many of the largest in the chemical industry to some of the smallest. Some of these companies make surfactants for their own use, some manufacture for sale, others both use and sell.

Undertaking to describe in detail the marketing of new products in such a market in a short article obviously is impossible, but I will try to present some of the major factors which should be considered in such a decision.

Considerations

In introducing a new surfactant, as in the case of any new product, all of the standard considerations concerned with the probable success in marketing the product and the expected return on investment must be carefully studied. To these must be added some additional considerations which apply to specialty products in general and surface active agents in particular.

1. Stage of development — Most of the major applications for surfactants are passing from the stage of late adolescence to early maturity. Thus, a new surfactant must compete not simply against soap or the absence of any surfactant in the process, but against all other surfactants. In most cases the product presently being used has won out over competitive products aggressively merchandised over a period of many years. In the early years of surfactant marketing, the imperfect knowledge of the potential user of the large number of compositions available and their properties was a factor favoring aggressive marketing. This factor now is steadily decreasing in the major applications.

Some of the products of greatest commercial significance are passing from the stage of specialty to semi-commodity. It is questionable if the risk will ever be reduced to the point where any surfactant may be considered a commodity. While it is difficult to conceive of new products that can displace caustic soda, chlorine, or ethyl alcohol, from their major uses, it is probably safe to say that any surfactant now used could completely disappear from the market.

2. Because of the way they are used, even minor differences in composition of surfactants are important. This involves not only changes in chemical configuration but variations in the extraneous materials present in the product. There are many applications in which the same (presumably) product made by different companies will not perform in the same way. As an example, a slight difference in

By Carl Pacifico,
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the distribution of ethylene oxide in a nonionic, even at the same average molecular weight, will change the cloud point.

Probability of Success

About the concept of "Probability of Technical Success," which will be considered in greater detail later, it must be noted that the probability of a new product performing satisfactorily in a given application is small. This is a major consideration in marketing techniques.

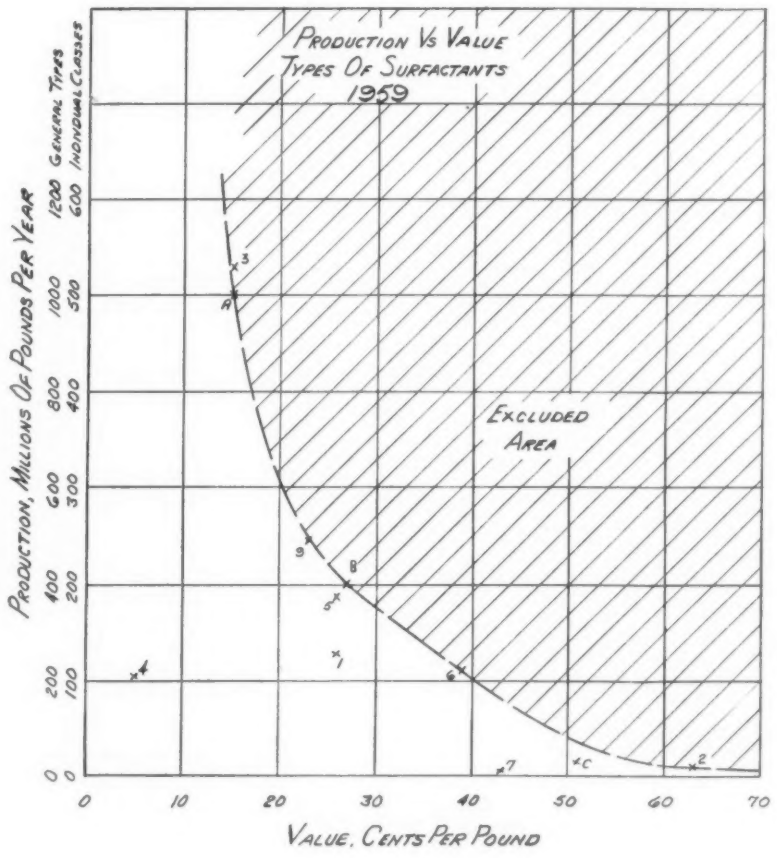
3. The performance of most surfactants is extremely sensitive to changes in the operating system. A product that works in one plant of a company may not work in another plant of the same company. In addition to the effect on the probability of technical success, this factor introduces the need for flexibility in a product composition in order to permit changes to compensate for changes in its operating conditions.

4. If the status of applications of surfactants is properly described as "early maturity," the state of development of the chemistry is more likely "late childhood." We have not yet been able to correlate all of the desired properties of surfactants with their chemical configuration. As examples, we do not know how to modify the composition for the desired hygroscopicity, for maximum antistatic effect, or for maximum suspending properties. The absence of this knowledge increases the cost of developing surfactants to suit specific requirements. It also increases the cost to the prospect in evaluating surfactants as it is seldom possible to select a suitable material simply by studying its chemical composition.

5. A related consideration is that the mechanism of operation of several important functions of surfactants is still not clear. How do detergents remove soil from cotton? In what way do quaternaries kill bacteria? On the other hand, there are operations in which the mechanism is somewhat clearer, but even with these we do not yet know what the optimum set of properties for the product should be. Important examples include water flooding, ore flotation and tilth improvement of soil. As a result, much selection of surfactants is still on an empirical basis, which means very high cost of testing.

6. The development of test methods has been fantastically difficult as might be expected from the large number of different functions the surfactant may perform in a wide variety of applications. The situation is further complicated by the variables of temperature and concentration of use and by minor variations in composition of the surfactant. It was soon found that standard scientific tests like surface tension and interfacial tension lowering are of little value. Test methods were then devised to measure specific properties such as the wetting speed on cotton or the removal of soil from standard fabrics. As experience showed that the correlation with practice of many of these test methods is poor, they have been gradually abandoned and are being replaced by actual use tests, which are expensive and time-consuming. Thus, in spite of the intelligent effort of many dedicated and competent men over the past 15 years, the status of test methods can only be considered as Early Paleolithic.

7. For some of the reasons mentioned above, it is not always possible to sell surfactants on the basis of specifications with complete confidence. No doubt every present supplier could furnish painful examples where



his product met the user's specifications but did not perform satisfactorily. This factor obviously greatly increases the cost of marketing for a new supplier.
8. There are many applications where the surfactant is only a small part of a final product or where it represents only a small part of the total cost. In the absence of adequate laboratory test methods, the cost of testing may be quite high, involving as it does relatively large quantities of other materials.

Specific Considerations

In addition to general considerations which should hold true in this field of surfactants in the foreseeable future, we must also consider the following more specific points in the industry as it exists today:

1. Technology

a) By far the largest volume of surfactants used today is based on simple technology in the sense that the entire reaction could be written on one line in a chemistry notebook.

Dodecylbenzene + sulfuric acid + caustic → alkylaryl sulfonate
Nonylphenol + ethylene oxide → alkylphenylpolyethoxyethanol

While the basic technology is simple, however, a very substantial amount of "art" is required, because of the sensitivity of the use to minor changes in composition of extraneous material. As knowledge of this type is seldom published, it can be a costly and painful experience for a new manufacturer to bring the quality of his product to the level now standard for most surfactants in the industry.

b) Most of the major surfactants can be made in equipment that requires little investment. A substantial number of companies have started operations with less than $100,000. Since the number of dollars of saleable material produced for a given investment is very high, the margin per pound between selling price and operating cost is usually low. The relationship greatly favors operations with low sales and other overhead costs and helps account for the large number of small companies which exist in the industry.

c) Patents on surfactant composition have played a surprisingly small role in the industry to date. This has been partially due to the fact that most such patents became obsolete before the industry grew to substantial commercial size. Other important patents expired in recent years so that patents restricting composition are now a relatively minor factor. On the other hand, there are an increasing number of patents on specific uses of surfactants which must be considered in any marketing decision. Even here, however, the number of restrictive patents is relatively small.

d) Most successful surfactants have been based on systems which have inherent flexibility in chemical composition so that the same product type may be modified to suit different conditions. Examples are modifying the chain length of the fatty alcohols, the number of moles of ethylene oxide added to various hydrophobes, or the choice of particular basic materials used for neutralization.

2. Marketing

a) Selection of markets—While the total volume of surfactants is very high, almost 1.5 billion pounds of active agent worth $268 million in 1959, distribution of sales by industry must also be considered. Industry sales range from very large to relatively small. Any market study of the volume used by the various industries, moreover, must take into consideration the amount of captive production. In view of the simple technology and small investment required, a large number of major users produce surfactants for their own use, sometimes selling off the balance elsewhere. Also, the size of the unit sale to the various industries differs considerably. While there are a number of companies buying tankwagon and tankcar quantities of surfactants, this number is small in comparison with the many who buy occasional drums.

Price has become an increasingly important consideration in the sale of surfactants in recent years. As in the early stage of most markets, at one time it was sufficient that a surfactant cost less or provided advantages beyond the previous method of operation. Now the new surfactant is evaluated on a price-performance basis for that application against all other contenders. Applications still exist where a potential user requires some specific composition and must pay its price. As illustrated by the accompanying exclusion chart, however, it can be seen that price is a factor regardless of composition. The data used are taken from the preliminary Tariff Commission figures for 1959. The chart is intended only to illustrate a principle and should be read "if the cost is X, then it is not likely that the volume would exceed Y." The data from which the chart is compiled is shown as Table I.

Marketing of surfactants requires a knowledge of the consuming industry. With the exception of semi-commodities, notably alkylaryl sulfonates and some nonionics, it is almost impossible simply to present the product as a re-

Table I. Production of Surfactants by Product Type — 1959

Designation	Product type	Production Million Lbs.	Value ¢/lb.
A	Anionic	1,060	16
B	Nonionic	399	27
C	Cationic and amphoteric	35	51
	Cyclic		
1	Esters and ethers, nonsulfonated (N)	129	26
2	Nitrogen-containing, nonsulfonated (C & A)	11	62
3	Alkyl benzenoid, sulfated and sulfonated (A)	531	16
4	Lignin derivatives, sulfonated (A)	207	5
	Acyclic		
5	Esters and ethers, nonsulfonated (N)	188	26
6	N-containing, nonsulfonated (A, N, C & A)	110	39
7	Phosphorus-containing, nonsulfonated (A)	2	43
8	Salts of fatty acids, nonsulfonated (A)	13	20
9	Sulfated and sulfonated (A)	245	23

placement for material currently being used, even at a lower price. In some fields the conditions of use are constantly changing so that close contact is required to change the recommended conditions of use, or even a complete change of product. Such industries include the textile industry, petroleum demulsifying, and ore flotation.

b) Applications Research — This function involves a few special problems in this industry. For reasons mentioned previously, more and more potential users require information from suppliers to show that the probability of technical success of the surfactant offered is sufficiently high to justify the user's cost of testing. This increases the cost of marketing as several companies will be doing the same work. Even more important, however, the supplier must learn to perform the laboratory test work for several different industries. In general, because of the problem of communicating the exact requirements of a specific company, much expensive but useless applications research is done.

3. Raw Materials

Because of the small profit margins typical of surfactants for the reasons described previously, all suppliers of major-volume surfactants are obliged to be basic in one or more raw materials. At present practically all alkylaryl sulfonates are produced and sold by companies who make their own ethylene oxide.

Introducing a Surfactant

With the foregoing background, perhaps we are finally in a position to consider how we are to proceed to bring a surfactant into this complex market. For convenience, we may group the possible products as follows:

1. Known composition for present uses
2. Minor change (presumably improvement) for present uses
3. Minor change (unknown value) for new uses
4. New products for present uses
5. New product for unknown uses.

Where a standard product for standard uses is involved in addition to the factors discussed previously, the usual considerations for any new product apply. These need not be discussed here.

The balance of the examples can probably be handled at the same time through the use of the following relationship:

$$DF = \frac{\text{(Advantages/lb.) (lbs./year) (Probable life) (Chances of technical success)}}{\text{Cost of Testing}}$$

This relationship is a measure of the force driving a potential customer to purchase your product. We can also use it in this case to measure the attractiveness of your product to a potential consuming industry. As may be seen, this involves the value of the advantages which your product would provide and the time in which these advantages would be gained. It also shows that the higher the probability that your product would prove technically successful, the more inclination there will be to try it, while a major obstacle to overcome is the cost of such tests. Obviously, both knowledge of the industry and judgment will be required to obtain the data for this relationship. Some of the data may be difficult to get but it should be obtained approximately at least before a new product is introduced.

Much useful information can be derived from the above relationship and the following are presented to illustrate the technique for using it:

1. If the advantages offered are high per pound and substantial volume is involved, the driving force is high so that the company can concentrate on straight sales techniques. Applications research can be minimized and the money spent instead on obtaining "characterizing data" on the product.
2. If the "advantage per pound" is low, process development is required to reduce the cost (and thus the price) of the product to increase the advantage to the customer. An alternate approach, but a much more difficult one, is to extend research and/or product development in order to make the surfactant more effective and so increase the "advantage per pound" in that way.
3. If the annual volume ("pounds per year") is low,

(*Turn to Page* 109)

Hazardous Substances Labeling

By **E. G. Klarmann, Ph.D.***, Vice-President and Manager of Technical Services, Lehn & Fink Products, Inc., New York

Part II

WITHOUT attempting to anticipate the eventual form which such a regulation will take, it may be relevant to point out that the problem of classification of toxicities is by no means new. We mentioned earlier that not only the Federal Hazardous Substances Labeling Act itself, but also a regulation to the Federal Insecticide, Fungicide and Rodenticide Act delineates the term "highly toxic" on the basis of toxicological test results on laboratory animals, the applicable criterion of oral toxicity being an LD_{50} of 50 mg. per kg. or less (with corresponding criteria of inhalation and absorption toxicities being provided for). However, an interpretation to the latter statute also recognizes additional categories of toxicity, and provides distinguishing criteria based upon test results obtained with animals. While this interpretation does not employ any adjectival description of these categories (other than of the "highly toxic" one), it does call for different types of precautionary labeling for each of them.

A classification of toxicities has been suggested also by Hodge and Sterner (9). Incidentally, this classification has been received into Spector's "Handbook of Toxicology," a well known text prepared in collaboration with the National Academy of Sciences and the National Research Council (10).

In their text book "Clinical Toxicology of Commercial Products," Gleason, Gosselin and Hodge suggested yet another classification, but of oral toxicities alone (11).

In response to a question as to a practical cut-off point for any kind of precautionary labeling, Gosselin proposed recently, as an immediate objective, to employ the oral LD_{50} of 500 or 1000 mg. (i.e. ½ to 1 g. per kg.) as a criterion, until such time as enough field experience has been accumulated to justify consideration of any higher figure (12).

It was emphasized before that there are a number of significant cases in which toxicity data on laboratory animals do not agree with established human experience. To give but one example, methyl alcohol is the least toxic for animals of the aliphatic alcohols. However, for a human being methyl alcohol is a poison and may after a period of latency produce severe metabolic acidosis as well as retinal injury, occasionally terminating in blindness.

It is quite probable that some time will elapse before manufacturers of chemical household products will have procured adequate toxicological information with respect to every one of their items on the market. Where such direct information has not been obtained by means of a special animal test, one may gain some preliminary idea as to a product's probable degree of toxicity through computation of the toxicities and the percentages of its components. Of course, this can be done only where it is reasonable to presume that these components are not behaving either in a synergistic or in an antagonistic manner with respect to the toxicity of the finished article. Among other factors, one must remember in such calculations that the same chemical in the dry state will act more slowly than when dissolved, that it will be absorbed into the system more slowly from an oil solution than from an aqueous one, also that the concomitance in the formula of a surface active substance may hasten its absorption while that of a suspending agent may retard it. The form of packaging would also play a role, since the same toxic substance when packed in an aerosol container would not be as readily available for oral ingestion as when kept in an ordinary bottle. Of course, where the desired toxicological information cannot be obtained by utilizing available data on individual chemicals (as published, e.g., in Spector's test referred to before, or elsewhere), one must subject the finished product to a toxicological animal test.

A regulation to the new Federal Hazardous Substances Labeling Act may also have to specify an experimentally verifiable and reproducible criterion for another category of hazards, viz. those classifiable under the term "irritant." Here again one need not envisage the need for cultivation of virgin territory since a number of relevant testing methods previously published by personnel members of the Food and Drug Administration, could be adapted for the purpose under discussion (13). Nevertheless, considerable additional study will have to be devoted to a number of open problems at the Federal regulatory level

*Paper presented during 47th annual meeting, Chemical Specialties Manufacturers Association, Hollywood, Fla., Dec. 5, 1960. Dr. Klarmann is chairman of the Precautionary Labeling Committee of CSMA.

before a truly comprehensive enforcement program can be embarked upon.

Household Poisonings

Of all the requirements of the Federal Hazardous Substances Labeling Act, the one which cautions against leaving a hazardous product within the reach of children is the most important, because many thousands of children under the age of 15 swallow some household products every year and several hundred of them pay with their lives. Of course, many adults, too, are injured and some are killed by one or another hazardous substance.

It is of considerable interest that a direct relationship has been established between the child's age and size, and the type of the toxic material ingested. Thus a baby of one year of age or younger, when crawling on the floor or under the sink, may locate and ingest some caustic or corrosive material, such as a drain opener or a toilet bowl cleaner. At the age of three of four, a child is both able and anxious to climb, and accordingly may find some drug in an unlocked medicine cabinet. Approximately 90 per cent of all poisoning accidents involve children under the age of five years.

Incidentally it does not seem to be too well known that lead is a frequent cause of poisoning in children. Lead gets into a child's body by chewing paint from painted articles (crib railing, toys) or from peelings of walls, windowsills, and ceilings.

In household poisonings a serious problem is created by the fact that harmful material is not kept in its original container. While drugs are usually left in the bottles or jars in which they are purchased, the opposite is true of many household aids, such as turpentine, kerosene, benzene and the like. Such materials are found often in soft drink bottles, in milk bottles, in jam pots, etc. where, of course, they can be located by children looking for something to eat or to drink. Actually, almost one-third of the household products involved in accidental ingestions were not in their original containers, according to a recent report (14).

Another significant factor in the accidental poisoning picture is suggested by findings that at the time of the ingestion the hazardous item involved has not been in its proper place of storage. Almost two-thirds of the reported ingestions occurred with substances away from their customary storage places.

Needless to say, there are additional instances where the principle of cautionary labeling cannot be applied constructively.

Concluding Remarks

It is of possible collateral interest, that recently the Food and Drug Administration received supplemental funds to finance enforcement of the new law. This money is to be used for salaries of many new employees, including inspectors, chemists and supporting personnel. The need for this large projected special staff will be understood in view of the estimate that from 5000 to 8000 individual firms will be subject to the new statute. Thus it is to be expected that effective enforcement of the Federal Hazardous Substances Labeling Act will bring about a marked decrease in the number of poisonings by chemical household products and of the fatalities resulting therefrom.

At the same time, a realistic appraisal of this matter should suggest that cautionary labeling alone, no matter how carefully worded or how prominently placed upon the package, will not yield a complete solution of the problem under discussion. A toddler, with his natural propensity for putting things in the mouth, cannot read a warning label. It is therefore of vital importance to find ways and means of enlightening the parents, i.e. the consuming public, as to the potential harm inherent in the misuse of certain household products, particularly by children. Only by impressing the parents with the vital need for keeping all hazardous substances out of the reach of children, may one hope to eliminate this source of trouble. Besides, one should always keep in mind that there is no such thing as an entirely non-injurious substance, i.e. one that could be ingested in an unlimited quantity with complete impunity.

It is hoped also that the passage of the Federal Hazardous Substances Labeling Act will help provide a pattern of pertinent legislative uniformity throughout the country, in spite of the early adoption by several states of cautionary labeling laws which, therefore, differ from the federal law or from each other in some essential details. (These states are Colorado, Connecticut, Illinois, Indiana, Kansas, Kentucky, Massachusetts, Ohio, Texas, and Vermont). It should be easy to visualize the difficulties which would confront a manufacturer, if he were required to comply with the different and sometimes conflicting provisions of individual state laws. It would be helpful also if the states could await the time when the proper federal agency, viz. the Food and Drug

(*Turn to Page* 103)

The background for the enactment of the new Federal Hazardous Substances Labeling Law and a review of its principal provisions.

Pine Cleaner Push

A CONTINUING and nationwide promotion effort on behalf of pine oil based cleaners and disinfectants has been launched by Hercules Powder Co., Wilmington, Del. A major producer of pine oil, Hercules has launched the campaign with the avowed aim "to make the women of America pine oil conscious — to motivate them to buy pine products in preference to other types of cleaners and disinfectants." Actually, what Hercules is trying to do, is to make consumers specify pine oil based cleaners which, in turn, will cause the supermarkets to give more shelf space to pine oil products.

To accomplish these aims a Pine Cleaner Information Center has been set up as headquarters for the campaign. Located at 205 East 42nd Street, New York 17, the center's activities are directed by Joan Marsh Worden, women's public relations specialist. According to Hercules, Mrs. Worden formerly conducted the women's program for America's chemical industry.

First step in the campaign was a preliminary survey by the Gallup organization on women's attitudes toward pine oil products. A more detailed survey is currently being conducted. Its results will form the basis of future strategy.

An advertisement scheduled to appear in the April issue of *Reader's Digest* will be the first major publicity move emanating from the center. Entitled "Miracle of the Pine," the advertisement is written in editorial form and bylined by Mrs. Joan Marsh Worden. Pine oil's germicidal action and detergent properties are pointed out. Its solvent and soil carrying action are explained. The copy mentions specifically the various household chemical specialties in which pine oil plays a part, including general purpose hard surface cleaners and laundry products. The consumer's attention is called to the different forms in which pine oil based cleaners may be marketed—liquids, powders, jellies, and aerosols. In conclusion, the copy tells the prospective buyer: "No matter what form the cleaning product takes, read the label to be sure it contains pine oil — the hard working nature product that makes your household chores so much easier."

Who will be reached by this message? 65 million people will see it, according to Hercules. After appearing in April *Reader's Digest* it will be carried in the publication's 27 international editions in 13 languages. Copies of the advertisement will be available to formulators and marketers of pine oil based cleaners and disinfectants who will be able to imprint their own message on the back cover.

An example of the center's future plans, were its activities at Christmas time when it tied pine cleaner to pine Christmas decor hints. This publicity program was directed at women through television, radio, newspapers, and women's magazines.

The Pine Cleaner Information Center plans to reach women in their various roles. It will tailor messages to the bride to be, the homemaker, the career woman, the farm wife, the maid, and others. To reach these different groups it will avail itself of all channels of communication. The center will arouse and enlist the interest and influence of women's page editors in newspapers and magazines, women's editors of wire services and Sunday supplements. The pine oil story will be told on the radio and TV women's shows and in women's clubs. Home economics teachers will receive material on the advantages of pine oil cleaners, disinfectants, and sanitizers.

Additional impetus to the pine oil campaign should result from a syndicated column which is to be called "Joan's Household Hints."

Another project involves radio and TV kits to be brought out by the center regularly every other month. These will carry the pine oil message to women's audiences in all major market areas throughout the United States. National magazines such as *McCall's* and *Ladies Home Journal* will be used as channels to tell the pine cleaner story.

The program also calls for

(*Turn to Page* 103)

MEN BEHIND THE PUSH: Robert S. Glover, Jr., (seated) manager of pine oil sales for Hercules and his assistant Arch McClelland.

THE ANATOMY OF A FRAGRANCE . . . .

PICTURED HERE ARE THE INGREDIENTS THAT COMPRISE PERFUME COMPOUND No. 34131 . . . .

While this is a fairly simple formulation containing some thirty different constituents, it serves—when presented in this manner—to illustrate the complexity of a typical fragrance. By referring to the keyed diagram on the back of this insert, all ingredients can be identified. As supplier of these ingredients, *ours* is the responsibility for *each* product's purity, uniformity and quality . . . and we pursue this obligation zealously. Whether in the manufacture or processing of these materials, or in the careful investigation and selection of supply sources where botanically derived natural oils are involved, our first consideration is for the superiority and salability of the finished product. When it comes to providing a proper solution to a customer's specific problem, then the experience and aesthetic discrimination of our creative perfumers are brought into play. Thus, with skill and patience, we achieve a result such as Compound No. 34131, presented—anatomically—above. FRITZSCHE is a name truly dedicated to *product salability* through *finished product quality* . . . that is why we feel our materials and services are so vitally important to YOU.

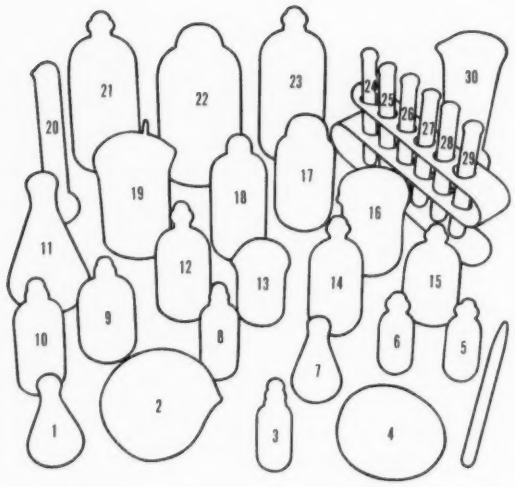
SEE OVER ⇨

FRITZSCHE

OUR 90th AND GREATEST YEAR!

1871... ...1961

KEY TO PHOTO *(on facing page)* . . . .



1. **ABSOLUTE OF JASMINE SEILLANS®**—Exclusive source of supply and special processing.
2. **COUMARIN**—Commercially available synthetic.
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8. 10% Solution **OIL COSTUS ROOT IN ALCOHOL**—Exclusive source of supply.
9. **FRITZBRO® SYNTHETIC FLOWER OIL RED ROSE**—F.B. specialty.
10. 10% Solution **ABSOLUTE CIVET IN ALCOHOL**—Exclusive Clifton process.
11. **VETIVER ACETATE EXTRA**—Clifton produced synthetic.
12. **METHYL IONONE GAMMA**—Commercially available synthetic.
13. **ABSOLUTE OF OAK MOSS SEILLANS® F-27**—Exclusive source of supply.
14. **HYDROXY-CITRONELLAL EXTRA**—Clifton produced synthetic.
15. **OIL YLANG YLANG EXTRA**—Exclusive source of supply.
16. **VETIVEROL**—Isolated by Clifton process.
17. **MUSK KETONE**—Commercially available synthetic.
18. **TINCTURE AMBERGRIS**—Our own production; exclusive source of supply.
19. **SANTALOL**—Isolated by Clifton process.
20. **OIL ORANGE SWEET TERPENELESS**—Exclusive Clifton process.
21. **iso-AMYL SALICYLATE**—Clifton produced synthetic.
22. **MUSK AMBRETTE** — Commercially available synthetic.
23. **LINALYL ACETATE 90/92% ESTER FROM BOIS DE ROSE**—Clifton produced synthetic.
24. **OIL ROSE USP KAZANLIK EXTRA**—Exclusive source of supply.
25. **NEROLI PETALE SYNTHETIC No. 31553**—F.B. specialty.
26. **FLORA No. 32076**—F.B. specialty.
27. **OIL PATCHOULY SINGAPORE RECTIFIED**—Exclusive source of supply and special reprocessing.
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IT'S BEEN TRULY SAID that you can't make a silk purse out of a sow's ear. By the same token, no perfumer, however skilled, can compose a fragrance masterpiece from materials of dubious grade. In fact, purity and uniformity are critical factors in the evaluation of any ingredient intended for the perfumer's use. That is why FRITZSCHE's 90-year record of experience and reliability is so important to its customers. That is why FRITZSCHE strives for continuing betterment of its products through advanced research, automatic instrumental analysis and control, and—wherever possible—by the employment of new and improved production techniques. By such means it hopes to make 1961 the *greatest* in all its years! . . . greatest for its customers . . . greatest in the quality of its products and services.

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The inclusion of Pfizer Gluconates in your formula gives your bottling customer a washing compound that gets bottles sparkling clean — free of haze and rust spots that could mar their appearance. Pfizer Gluconates also provide for more efficient aluminum label removal and prevent the development of scale on equipment.

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Outstanding caustic rust removal compounds are possible with Pfizer Gluconates. Besides dissolving rust efficiently, the presence of gluconates will retard after-rust and prolong the life of the bath. Also, a small amount of gluconate added to standard alkaline cleaning compounds helps in the removal of light rust films.

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Pfizer Gluconates in aluminum etching compounds prevent the formation of hard, adherent scale. Efficient and economical, too, because you use very little gluconate in the compounds, yet assure an even, uniform etch.

STRIPPING PAINT FROM STEEL

Pfizer Gluconates improve the efficiency of caustic paint-stripping compounds. They increase the rate of paint film removal and permit free rinsing of the paint-stripped metal. In addition, Pfizer Gluconates eliminate the usual after-film of iron oxide.

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The lower-numbered compounds in the Hyonic PE Series are useful as emulsifiers and emulsifier components. Hyonic PE 30 finds extensive use as a defoamer.

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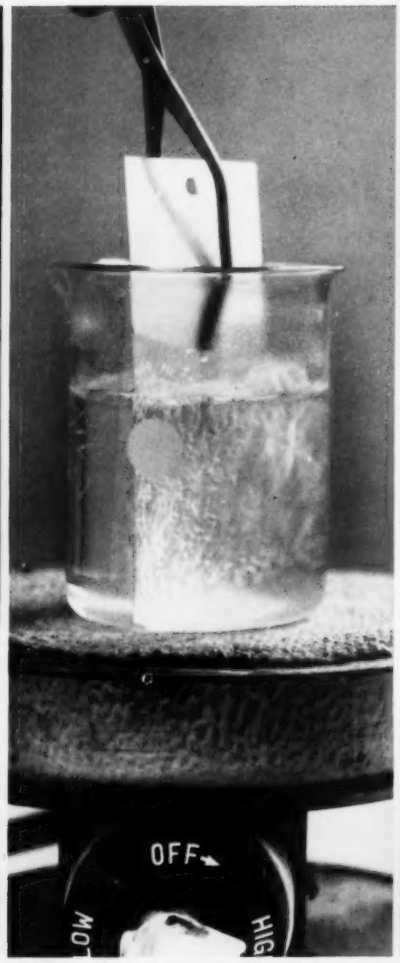
New Carboset 511, film-forming acrylic polymer dries at room temperatures to a clear, glossy film. Films adhere well to metal, glass, paper or leather.



Brushed, dipped or sprayed films are not only water resistant, but boiling water resistant.

Films are easily removed with dilute bases, thin films are removed even with soap. The alkali solubility is not affected by aging.

New acrylic polymer dries from water solutions to clear film that resists even boiling water

New Carboset 511 offers promise as an ingredient in temporary coatings to facilitate their removal. It also shows promise for coating or binding applications not involving aqueous alkaline exposure. Carboset 511 is compatible with most other water-soluble or water-dispersible systems. It can be readily diluted with water.

This versatile film-former is now available in commercial quantities. You can get samples for testing and more information by writing Department PC-2, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

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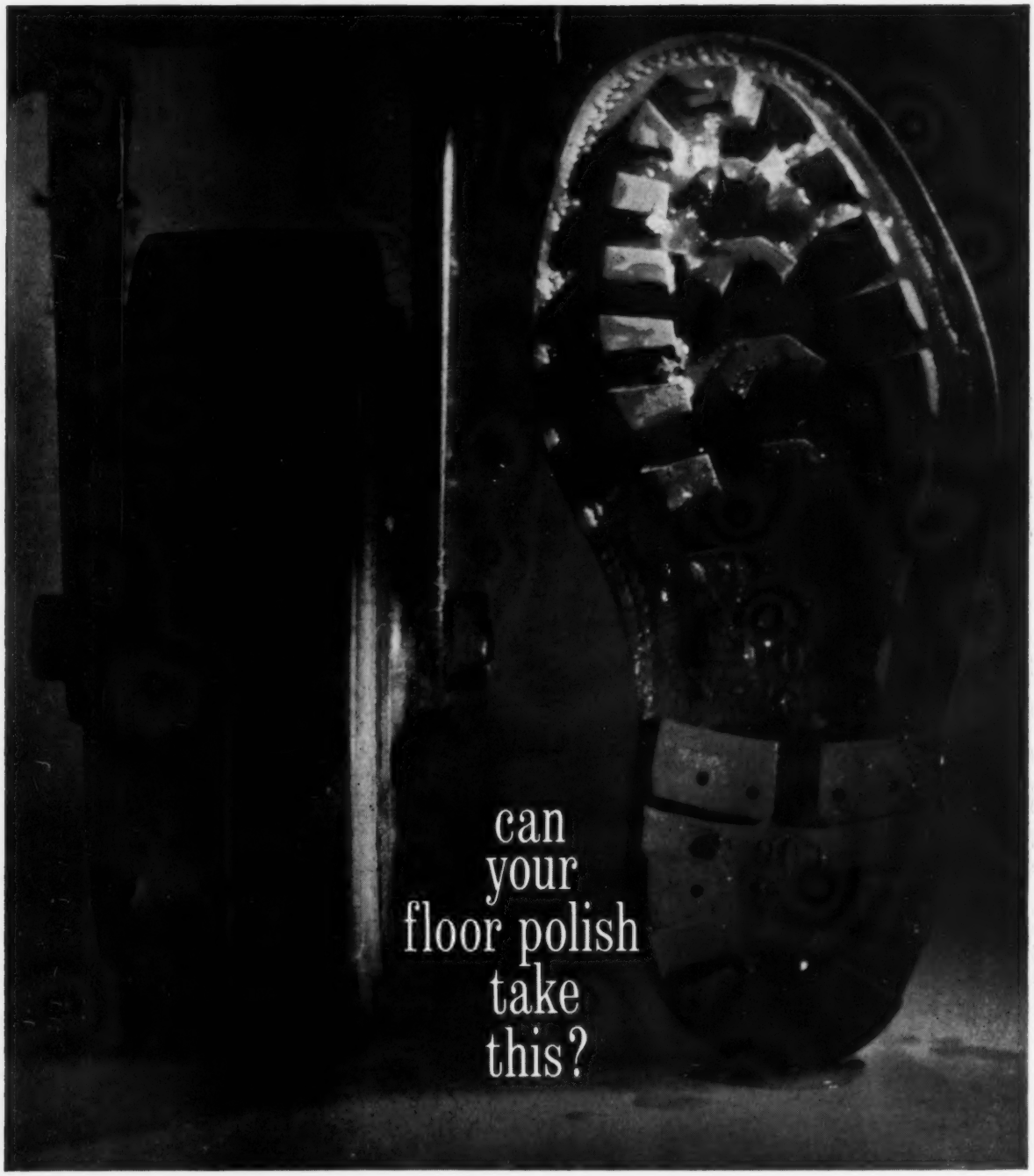

There's a $40 million market waiting for polishes that can stand the gaff of trudging shoes and trundling wheels on the floors on which America does its business.

It's not an easy market to crack, though. Some 200 polish producers are hot after this rich prize. Who will come out with the winning combinations of hardness, gloss, slip resistance, durability, rebuffability, easy removability?

If you're one of the contenders, we'd like to get in the ring with you. There's nothing like Durez resin for giving a floor polish the properties you want it to have. (This holds true whether you're standing pat with a high-wax product, or developing a polymer-type polish for the industrial market.)

Despite the many things it can do, Durez resin is one of the cheapest polish ingredients you can buy. And its stable price helps you avoid the price ups and downs of natural materials.

We've made thousands of resin formulations, and we keep developing new ones all the time. To cash in on the newest and best in resins, many floor-polish manufacturers find it good business to check with us from time to time. If you think a Durez resin might help you with a polish formulation problem, why not write us about it?

If you prefer to buy fusions of resins and wax, you can get them, made with Durez resins, from many specialty processors. Ask us for their names.

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Sanitizers
Skin protectors
Stain removers
Sweeping compounds
Wax strippers
Weed chemicals
and other
Chemical Specialties

G. G. Goodwin, in charge of [illegible] chemical laboratory at Belleville, Ill., inspects recently arrived bottles of pesticides. These were collected by investigators, sealed and submitted to the laboratory for tests with collection data showing [illegible] adjacent. Belleville plays its enforcement of Federal Insecticide, Fungicide and Rodenticide Act in accordance with article starting on page 16.

Investigate . . .

IF you are a manufacturer of insecticides, disinfectants, deodorants, aerosol products, soap and detergent specialties, floor products, automotive chemicals and kindred specialties, it could be to your advantage to investigate the benefits of membership in the Chemical Specialties Manufacturers Association.

Since 1914, leading firms in the industry, large and small, have been members of CSMA and identified with its activities. Membership dues are low. Services and contacts are broad and valuable.

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Secretary

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	COLOR
Colorless Liquid *(ABSENCE OF COLOR)*	0
GYMPERIAL FINISH	2
Epoxy Finish *(11 TIMES DARKER THAN GYMPERIAL)*	8
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Phenolic Finish *(57 TIMES DARKER THAN GYMPERIAL)*	12

STANDARD ABRASION TEST

Materials applied on panels in uniform thickness of film, dried for 72 hours, run on Taber Abraser to point where each film is half-worn off.

	WEAR CYCLES (to half-worn off point)	
GYMPERIAL FINISH	4100	revolutions
Epoxy Finish	1530	"
Oil Modified Polyurethane Finish	1480	"
Phenolic Finish	825	"

2. GYMPERIAL gives 2 to 5 times greater abrasion resistance to floors than other Gym Finishes on the market today.

The competitive advantages of this important breakthrough in polymer chemistry are obvious to the private label distributor of Gym Finishes.

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they all fall for

SULFOXIDE PYREXCEL 20

SULFOXIDE PYREXCEL 20 kills flies, roaches and other crawling insects fast!

Based on quick-acting pyrethrum, synergized with potency-multiplying SULFOXIDE, this outstanding insecticide is highly effective even against resistant strains. Economical, too, since low concentrations do the job.

SULFOXIDE PYREXCEL 20 is pleasant to use, with a mild odor that won't irritate the nose or throat. Its low toxicity makes it safe for application in food establishments. It can be used in any type spray, atomizer or fog generator.

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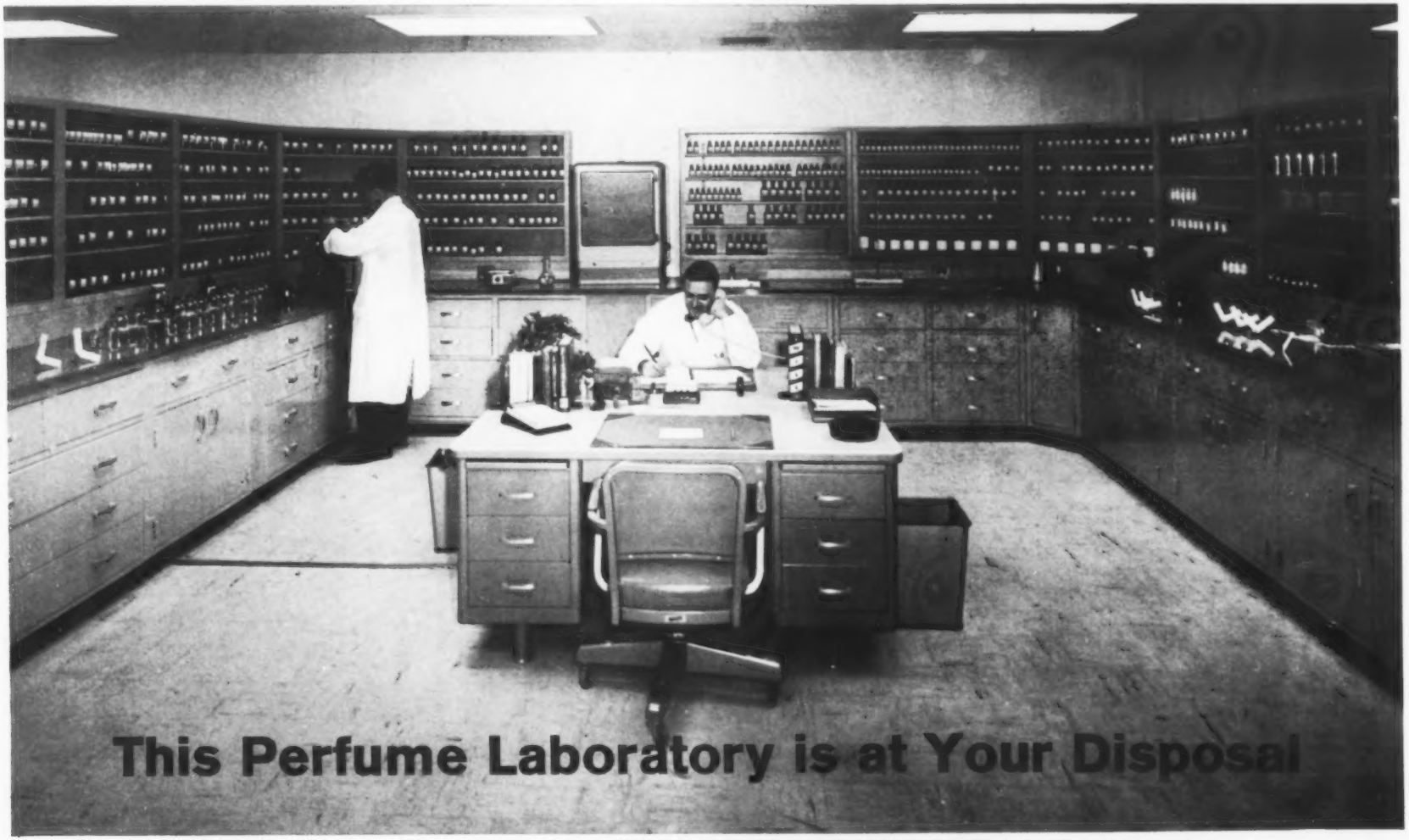
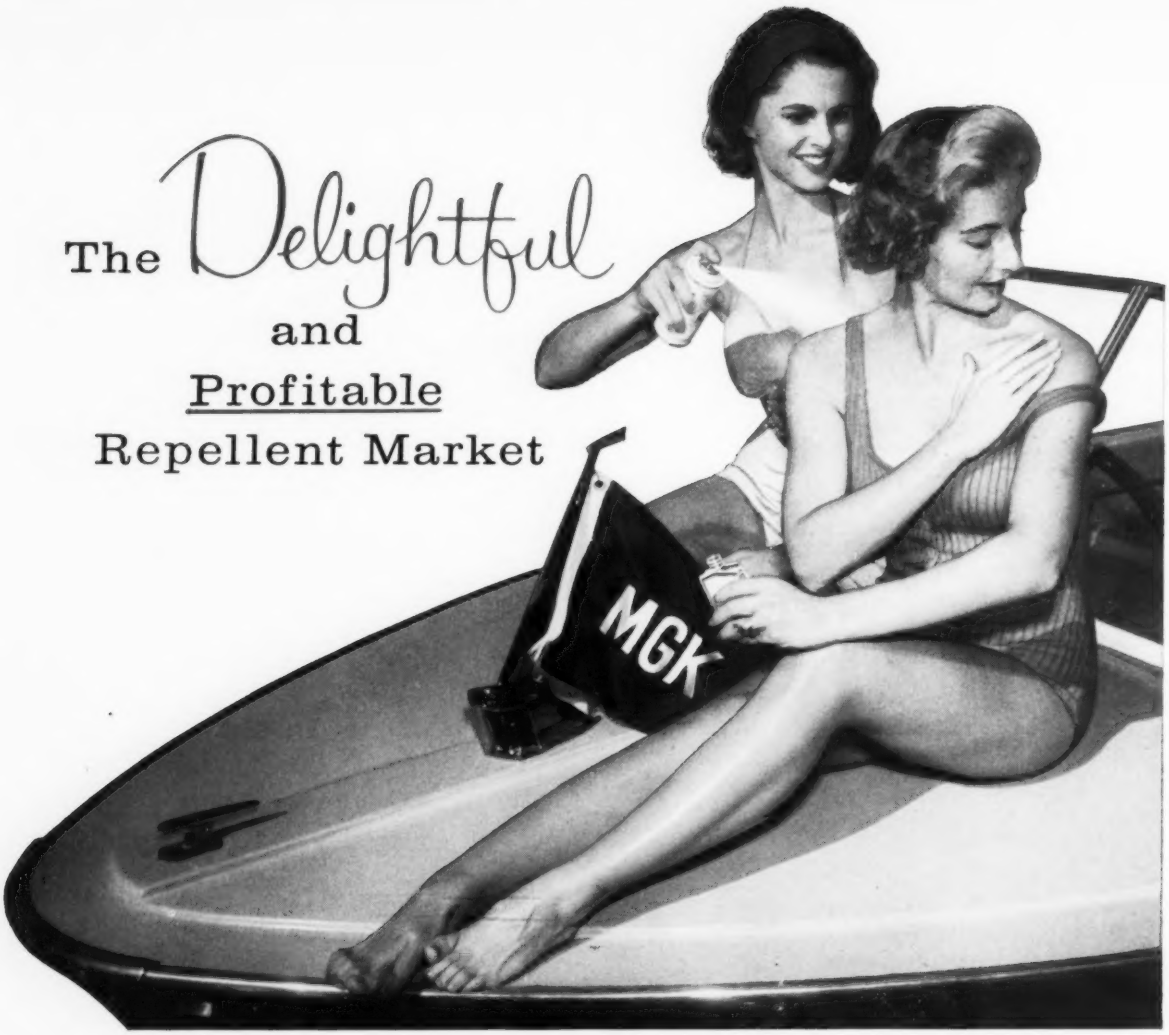


D & O has recently moved to new quarters . . . spacious, completely modern laboratories such as this one shown above.

Patient, individual care is given to all perfume problems as they arrive. Technical assistance without obligation. Consult D&O.

Dodge & Olcott Inc.
Manhattan Industrial Center
Seventy-five 9th Avenue New York 11, New York

The Delightful and Profitable Repellent Market



As the outdoor recreational activities of boating, golfing, fishing, camping, and all the others, continue to grow at a fantastic rate, so does the market for personal repellents grow. It's a delightful and profitable market because it adds to out-of-doors comfort.

MGK R-11 and MGK Repellent 326 are accepted and widely used because of their high efficiency in repelling biting flies, mosquitoes and other insects. Our accumulated data in this expanding market is yours for the asking. Just send the coupon.

MGK McLAUGHLIN GORMLEY KING Company

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McLAUGHLIN GORMLEY KING COMPANY
1715 S.E. Fifth Street • Minneapolis, Minnesota

Gentlemen:

○ Please send information on MGK R-11 and MGK Repellent 326.

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ADDRESS_____

CITY_____ ZONE____ STATE_____

Enforcing the Pesticide Act

The role of chemistry in the administration of the Federal Insecticide, Fungicide, and Rodenticide Act

By Thomas H. Harris, Clarence C. Donovan and Robert L. Caswell*,

U. S. Department of Agriculture, Plant Pest Control Division,
Pesticide Regulation Branch, Washington 25, D. C.

THE Insecticide Act of 1910 was intended to regulate the marketing of insecticides and fungicides. In 1912, the term "fungi" was specifically defined by regulation to include bacteria thus establishing the legal authority of the Act with respect to antibacterial agents. In 1947, this Act was replaced by the Federal Insecticide, Fungicide, and Rodenticide Act and was expanded to include herbicides and rodenticides and to incorporate certain major revisions including the requirement of regulation. In 1959, this Act was further amended to include growth regulators, nematocides, desiccants, and defoliants.

The Pesticide Regulation Branch which is responsible for the enforcement of this Act is made up of eight sections: Bacteriology, Chemistry, Fungicides and Nematocides, Herbicides and Plant Regulators, Entomology, Pharmacology and Rodenticides, Registration, Investigation and Case Development. A discussion of the provisions and overall administration of this Act has been the subject of previous papers presented at meetings of the Chemical Specialties Manufacturers Assn. At this time we would like to describe the responsibilities of the Chemistry Section and the role of the chemists in the administration of this Act.

Registration of Products

One of the most important legal requirements of the Act is the registration of all products subject to its jurisdiction. The pertinent facts concerning registration are well known to the pesticide industry since they have been incorporated in the Act and regulations which have been widely circulated, and have also been published in a number of periodicals. Accordingly, the detailed requirements, excluding the role administered by the chemists, will not be further discussed.

Up to this time, there have been approximately 62,000 accumulative registrations, 13,000 of which have been cancelled. In addition to this number, there have been 45,000 registrations of distributors which make an overall total of 94,000 remaining in effect. This does not take into account a large number of re-registrations under the five year plan. All of these registrations with exception of those of the distributors have been reviewed by the chemists.

Labels for each product must be submitted for registration together with data sheets which should include the name and percentages of each active and inert ingredient so that the claims on the label may be properly evaluated. The chemists inspect all these submitted labels to ascertain if the name and the ingredient and net

Dr. Thomas H. Harris, Head of Chemistry Section, discussing with registrant certain requirements of the Act with respect to labeling.

*Paper presented by Mr. Donovan during 43rd annual meeting, Chemical Specialties Manufacturers Assn., Hollywood, Fla., Dec. 6, 1960.

content statements are correct. They observe if the label bears the name and address of the registrant or distributor, as required by law. They also look for false and misleading statements, prohibitive endorsements, or non-permitted references to federal registration. In collaboration with scientists from other sections of the Branch, they determine if tolerances have been established for their recommended uses.

Frequently, applications are received for several different formulations bearing the same name from the same manufacturer. This is unacceptable and the chemical reviewer must mention to the registrants the necessity of some differences between the designations, for example, by numerals or other appropriate words. Frequently, the names on many of the labels are incorrect as they bear a false relation to the composition of the products. There have been numerous disinfectants named *"Pine Oil Disinfectants"* where the claimed water content on the labels have been as high as 30 to 40 per cent, whereas the high limit of water in a pine oil disinfectant should not be greater than 10 per cent. In some instances products containing only a relatively small percentage of toxicant have been called, for example, *Rotenone* instead of *Rotenone Dust*. Similar label defects have been observed on the labels of many other products submitted for registration.

The statement of net content is given as net volume for liquids and as net weight for other products such as solids, semi-solids or aerosols. Exceptions are made for some liquids, for example, U. S. P. formaldehyde solution and nicotine sulfate containing 40 per cent nicotine, which are usually sold by weight. A statement of net content "when packed" or other conditional statements do not comply with the requirements of the Act since the statement must be correct as long as the economic poison is subject to the law. Reviewers note this labeling defect quite frequently on labels for products containing volatile ingredients such as naphthalene or paradichlorobenzene.

R. L. Caswell, Chemist In Charge of Methods Investigation, analyzes sample of a pesticide by infrared spectrophotometry. Analysis must agree with composition claimed on the label. The analysis will also guide in deciding whether the product is capable of giving results claimed for it by the manufacturer.

One of the more troublesome tasks of the chemical reviewers is caused by objectionable ingredient statements. The label must bear an ingredient statement giving either (1) the name and percentage of each active ingredient and the total percentage of inert ingredients, or (2) the name of each active ingredient, the name of each inert ingredient, and the total percentage of inert ingredients. In the second form of the ingredient statement the active ingredients and the inert ingredients must each be listed in the descending order of the percentages present. The first form must be used if the product is highly toxic, and in the registration of arsenicals the percentage of total arsenic and the percentage of water soluble arsenic, each as elemental, are also required. For the assistance of applicants, the Branch has prepared a form designated as OS-2 that explains with illustrations the accepted forms for ingredient statements.

Ingredient Names

The problem of judging the acceptability of the name of an ingredient is much more difficult than may be apparent. The Act requires that the ingredient statement give the specific names by which the ingredient is commonly known, other than a trade name or collective name, or if it does not have such a name, its correct chemical name. The reviewing chemists must be familiar with all the common systems of nomenclature especially that used in *Chemical Abstracts*. In cases where there has been some question as to proper ingredient names, Dr. Leonard T. Capell of the Chemical Abstracts Service has been consulted and he has furnished the Branch with the correct names to be used. Chemicals of long established use often have a common name or a simple chemical name and present no problem. Since the chemical names are often very long, it is desirable to establish common names for these materials. Before common names for the newer pesticide chemicals may be used in the ingredient statement they must be accepted by the American Standards Assn. As defined in part by this association, a common name shall be preferably short and may, but need not, have a relationship to the chemical name or nature of the product. If commonly accepted prefixes or suffixes are used, such use shall in no way conflict with the nomenclature of the American Chemical Society. The name shall not be so similar, phonetically or in spelling, to a systematically formed

name or to a common name or trade name of another commercial product as to be likely to cause confusion between the products. In addition to the mandatory use of the common names, the Branch also requires the chemical names to be given either in parenthesis after the common names or as ingredient substatements. Abbreviations alone are not accepted as names of ingredients but may be given either after or before correct ingredient names. Sometimes an abbreviation such as 2,4-D for 2,4-dichlorophenoxyacetic acid comes into common usage but is not acceptable as a common name, further complicating the problem of nomenclature. The majority of new pesticide chemicals have no common name and for some purposes are designated by trade or proprietary names. These names may not, however, be used as names of ingredients in the ingredient statement, although they may be used on other parts of the label. This is another registration error frequently made even by some manufacturers who have been registering products since enactment of the Act. Some materials such as toxaphene are very complex mixtures and even the identity of the components may be unknown. The name that is most descriptive of the material is then acceptable; for example, toxaphene is declared as "toxaphene, technical chlorinated camphene, chlorine content 67-69%." Sometimes the name primarily expresses the source of the ingredient as "petroleum distillate."

The naming of emulsifiers and other surface active agents presents a particularly difficult problem. These are usually considered to be inert, but in the second form of ingredient statement the correct name must be given. They are usually mixtures, either members of a homologous series as "alkyl benzene sulfonates" or polymers of different molecular weights as "isooctyl polyethoxyethanol." For these ingredients an acceptable name should at least designate all the structures present but not necessarily specify every compound in the mixture. Thus "alkyl benzene sulfonate" would be regarded as too indefinite but "lauryl benzene sulfonate" would be acceptable. Some of the quaternary ammonium compounds present a similar problem. The quaternaries, however, are active ingredients, and since different members of homologous series have different germicidal or sanitizing activity (for example, the alkyl dimethyl benzyl ammonium chlorides) they are regarded as different ingredients. An example of an acceptable name is "alkyl (C_{14} 50%, C_{12} 40% C_{16} 10%) dimethyl benzyl ammonium chlorides," or using the second form of ingredient statement, "alkyl (C_{14}, C_{12}, C_{16}) dimethyl benzyl ammonium chlorides," with the alkyl groups listed in the descending order of the percentages present.

The Chemistry Section in collaborating with the other technical sections of the Branch judges whether an ingredient should be classified as active or inert.

Samples of products shipped in interstate commerce subject to the Federal Insecticide, Fungicide, and Rodenticide Act are collected by investigators who are stationed in various regions of the United States. Most of the products are collected under regular project surveys while others are collected as a result of previous violations, trade complaints, or in cooperation with State requests. Imports of pesticide shipments are sampled at the port of entry by the Collector of Customs and sent usually to the nearest laboratory for examination. They must be properly labeled and registered before they are admitted.

E. L. Green, Chemist, reviews label submitted with application for registration under Sec. 4 of the Act. Approximately 1,000 applications are reviewed monthly.

Chemical Analyses

The chemical laboratories have the responsibilities of determining net contents and the composition of the products, in particular the percentage of each of the active ingredients. Samples in apparent violation such as unregistered ones, imports, and those likely to deteriorate while awaiting tests are given priority.

The net weight of the product is determined by difference between the gross and tare weights and the net volume of liquids is measured either in a standardized graduated cylinder or by calculation from the net weights and their densities. In apparent net volume deficiencies the small amount of

the sample remaining on the sides and bottom of the container is taken in consideration.

The chemical laboratories have reported a large number of net content shortages. This has been especially true of certain aqueous solutions in mixtures with synthetic soaps that have a tendency to foam excessively causing delay and interference in packaging operations. In our charges and correspondence to various manufacturers regarding these violations, it has been revealed that most of them have resulted from carelessness and the use of obsolete packaging devices, and subsequently have been replaced with more accurate ones after our notification.

Our laboratories use whenever applicable the methods that have been officially adopted and published by the Association of Official Agricultural Chemists, the creosote methods published in the American Wood Preserver's Manual and certain other procedures published in the *U. S. Pharmacopoea* and other recognized texts.

The *Munsell Book of Colors* is used to determine the color range in sodium fluoride and lead arsenates. In many instances, we employ other methods that have either been developed and tested in our laboratories or other satisfactory ones submitted to us by industry or others.

Product Analysis

A large variety of methods is used for the analysis of the products. One determination may suffice for a pesticide consisting of one active ingredient and a diluent or solvent, but several determinations often are required for a product containing several active ingredients. A rapid method is desirable though more specific, slower methods are also required. Methods involving the determination of an element such as chlorine or nitrogen or a functional group such as hydroxyl are commonly used. Instrumental methods such as ultaviolet, visible, and infrared spectrophotometry are often rapid and specific though they require that standards of the pure chemical to be determined be available. Infrared methods are particularly specific and may identify a particular compound. Spectrophotometric methods are subject to interference from the other active ingredients and solvents and are not always applicable. Preliminary separation of the ingredients of the pesticide may be necessary, for example, by chromatography, solvent extraction, or distillation. If the ingredients are known, a synthetic mixture approximating the composition of the unknown sample may be prepared and the infrared spectra compared to verify whether the samples are identical. For relatively low-boiling materials gas chromatography is used to separate, identify, and determine the components. Polarography is useful for the determination of certain reducible compounds. New pesticides are rapidly being developed and methods must be found for analyzing the formulations. Also, the Federal Insecticide, Fungicide, and Rodenticide Act has recently been amended to include desiccants, plant growth regulators, and nematocides, increasing the number of pesticide chemicals. A method that is satisfactory for the pure chemical usually requires considerable modification before it can be used on mixtures. Obviously, several methods may be required for the determination of a pesticide chemical considering the great variety of formulated mixtures in which it may be used.

W. N. Blickenstaff, Chemist, determining the components of a grain fumigant by gas chromatography.

Even with the methods available many products are so complex that a complete analysis is not reasonably possible and biological tests are required to ascertain if the formulation is in compliance with label claims. One registered product claimed 25 different quaternary ammonium compounds, and numerous others have contained from five to 10 ingredients including fungicides, insecticides, synergists, and solvents.

Generally, in multicomponent products, the ingredients selected for determination are those most likely to show a deficiency or those most effective for the claimed uses. Rapid, non-specific methods such as total chlorine determinations are often used; but products for which there is reason to suspect adulteration are analyzed by the most specific method available.

While our Branch is strictly a regulatory agency, considerable methods investigations by our chemist in charge of method investigations and the other chemists are required in our laboratories to devise satisfactory procedures for the assay of the many diversified formulations received. In the further development of methods, we collaborate with the Association of Official Agricultural Chemists, the Association of American Pest Control Officials and the Chemical Specialties Manufacturers Association.

The Association of Official Agricultural Chemists referees for pesticides and the associate referees, one for each pesticide chemical or group of chemicals, consider the best methods of analysis and submit them for collaborative study. Satisfactory ones are recommended for adoption by the Association of Official Agricultural Chemists.

We wish at this time to express our appreciation to indus-

(*Turn to Page* 107)

Gas chromatograph being employed by technician in laboratory of Continental Filling Corp., Danville, Ill., is used to determine both the quantity and types of propellants in aerosol products. This is a new tool in aerosol quality control.

Aerosol Quality Control-II

. . . Concentrate and Concentrate Systems

By S. J. Campbell*,
Continental Filling Corp.,
Danville, Ill.

THE firms which pioneered the aerosol field fortunately showed great foresight in establishing quality control procedures early in the development of the pressure package. The stringent quality control practiced in aerosol loading plants has doubtless been a major factor in the fabulous growth of this form of packaging.

Emergence of new techniques and new apparatus has brought many improvements to quality control procedures in the past 14 years. Introduction to the market every year of new products in pressure packaged form has necessitated the development of new and different quality control methods.

Actually, the quality control program for an individual product is born in the development laboratory almost immediately after the product has been conceived. Quality control might justly be described as a testing program designed to maintain a product's desirable characteristics while minimizing its undesirable properties. To set up a successful quality control program for any product one must therefore first ascertain which are the desirable and which are the undesirable characteristics and then provide tests to measure both.

S. J. Campbell

Quality control of a concentrate should obviously start with appropriate checking of the raw materials received. This enables one to eliminate undesirable or contaminated raw materials before they ever become ingredients of the concentrate. Such preventive measures save time and expense.

To enable an aerosol loader to initiate a quality control system for raw materials and concentrates, the quality control laboratory must be provided with adequate equipment, procedures and techniques to perform its task. Some of the basic tests commonly employed in this field will be outlined.

Specific Gravity: — Specific gravity determination is a good

*Paper presented during 43rd annual meeting, Chemical Specialties Manufacturers Assn., Hollywood, Fla., Dec. 7, 1960.

basic control test to be performed on liquid raw materials as well as concentrates involving a combination of two or more liquids, particularly where each of the liquids making up the concentrate exhibits a different specific gravity.

When a solid is dissolved in a liquid, the specific gravity of the resultant solution will usually change. This change should be sufficient to allow a simple graph to be prepared which would make it easy for the technician to determine solids by a simple specific gravity determination. Usually hydrometers are used for this test, or the Westphal balance, dependent upon the degree of accuracy needed. Since specific gravity may vary with temperature, a constant temperature bath is recommended.

The aerosol package has made it necessary to develop some special tests in order to determine the specific gravity or density of a low boiling liquid. It is possible to determine the specific gravity of the total liquid in an aerosol dispenser by one of at least two methods: The contents of the dispenser may be cooled below the boiling point of the liquid, usually to the boiling point of propellant 12 or −21.6° F., and the resultant specific gravity determined at this low temperature. As an alternative the contents of the dispenser may be transferred into an elongated pressure tube containing an appropriate hydrometer, the temperature adjusted to standard conditions, and the resultant specific gravity determined by hydrometer.

Refractive Index: — The index of refraction of a substance is a constant which represents the ratio of the velocity of light in a vacuum to that in the substance. This so called blending of light can easily be measured by the use of a refractometer. Since the addition of a contaminant to a liquid will usually alter the refractive index of the liquid, this is a particularly good test for liquid raw materials and, by the same token, is applicable on the concentrate mixture.

Distillation Range: — This test is generally used in receiving inspection procedures involving solvents and diluents for the concentrate. Distillation range information is particularly important if it is necessary to control evaporation rate, solvency, and particle size.

Overall view of quality control laboratory of Continental Filling Corp. in Danville. Ill. Here is where quality control begins.

Odor Evaluation:—Odor evaluation is a simple and rapid test for detecting gross errors, at least. The person performing this test must have good olfactory perception. It is interesting to note that, while most people are capable of detecting gross differences in odor, a much smaller percentage of people is capable of properly evaluating small differences.

Clarity Evaluation: — In many instances, simple visual comparison of the sample of the liquid in glass with a standard will reveal difficulties or faulty materials.

Moisture Determination: — Where anhydrous or minimum water content formulas are desired, a moisture determination method is obviously required. Undoubtedly the method most commonly used for aerosol packages is the Karl Fischer method involving electrometric titration. The standard test procedure can easily be performed on nonvolatile high boiling liquids. However, special techniques have to be employed in making the determination on a complete aerosol formulation. This test is fairly reliable and accurate generally in a range of from 10 to 15 parts per million.

For ease of operation and to minimize the human error in determining the electrometric titration end point, automatic titrators are available.

Solids Content: — There are many methods for determining solids in a formula. Knowledge of the various constituents of the concentrate will guide the technician's selection of the appropriate solids determination method.

Flashpoint: — There are basically two methods of running flashpoint; test one being the open cup, and the other being the closed cup method. Standard apparatus and methods are available.

Colorimetric Determinations: — This approach is applicable to raw materials as well as concentrate liquids. The simplest instrument to use is a color comparator. Several types of colorimeters are available for this purpose. Colorimetric determinations may be used for maintaining a standard product color. The more complex instruments serve to actually determine the concentration of one of the ingredients.

pH Determinations: — pH is becoming a more important factor in aerosol formulations due to the

tremendous increase in the number of water based aerosol packages. In water based formulas it is often necessary to adjust and buffer the pH of the solution to a specific value. Several methods exist for making pH determinations and the choice of method will be determined by the speed and the degree of accuracy required.

Aniline Point:—This test is performed on special concentrates and is a function of the solubility of the product.

Acid Number: — This test indicates the amount of free acid present in a substance.

Saponification Number: — This tells the number of milligrams of potassium hydroxide required for the complete saponification of one gram of substance.

Chlorine Content: — This test is particularly appropriate for raw materials and concentrates made up of materials containing chlorine compounds such as insecticidal formulations.

Viscosity: — For water based emulsions exhibiting higher viscosities a test mechanism is required for determining viscosity and maintaining it at a standard level. Foam products and wax emulsions are representative of materials necessitating this quality test.

Chromatography: — Of the many new chromatographic procedures and techniques, gas chromatography is the most suitable for testing the low boiling compounds used in aerosol concentrates.

If an unusual product is being loaded, undoubtedly additional and possibly special test procedures may have to be employed. An excellent tool for aerosol quality control is infrared spectrophotometry, a technique discussed in detail by Dr. D. H. Terry in his contribution to this symposium. A major filler of insecticidal aerosols might find it desirable to perform his own biological tests to verify insecticidal properties of raw materials and concentrate.

Check on Plant

Concentrate handling systems, including mixing tanks, transfer lines, pumps, heat exchangers, filters, scales, flowmeters, and other equipment influence quality of the end product. The chemical and physical characteristics of the specific concentrate dictate the type of equipment and materials of construction that will provide the desired end result.

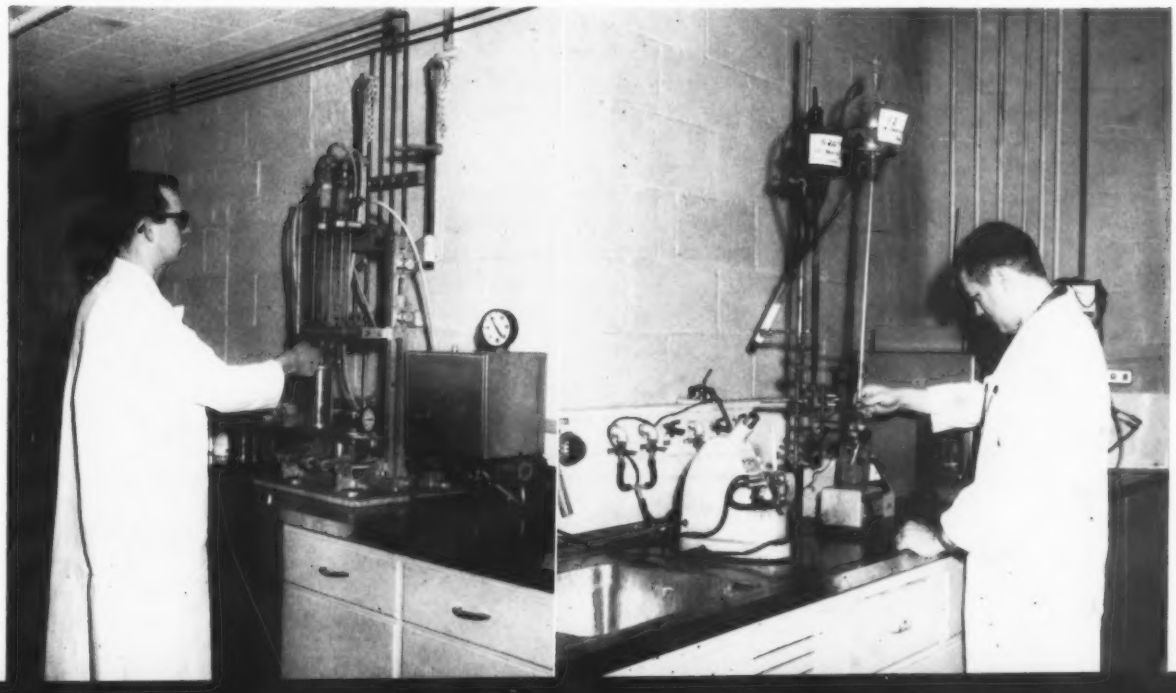
If the concentrate must be anhydrous, then it is necessary to handle this concentrate in an essentially closed system. In certain instances, even the moisture contained in the air in the head space of tanks will contribute to a poor quality end result. In such instances it is desirable to replace air in the head space with nitrogen, and, as the tank is emptied, to fill the head space void with nitrogen. If a liquid level system is involved, such as in some filling machines, then breathers should be attached to the head space through appropriate air dryers or desiccants.

In a cold filling operation, the correct concentrate temperature should be established for the specific product. Obviously the precipitation temperature should never be reached since this might permit a subsequent filter to remove one of the desirable active ingredients. Efficient temperature control on active liquids is very important.

In Process Control

The production line filling operation involves many quality control checks. Of major significance are the dispenser pressure determination; measurement of dispensing delivery rate; flammability tests by flame projection, drum tests and open cup; analyses of composition of head space vapors by gas chromatography as a check on purging. Inspection of the filling operation for cleanliness, spillage and splatter is essential and a visual inspection of the package is

Preparation of pre-production product samples (left) can avoid costly mistakes in regular production runs. Here all components of the aerosol are assembled and checked. Karl Fischer moisture determination test being run at right.



required to detect dents, scratches, and other physical flaws.

The weighing operation is important, particularly if the product contains expensive materials. It is essential that an acceptable statistical control method be used to determine the accuracy of the filling machine. To perform this task, suitable weighing apparatus is required. For speed and accuracy, an automatic balance is recommended with an accuracy better than plus or minus 0.1 grams. It must be recognized that the empty cans will vary in weight by as much as six or seven grams. Therefore it is essential that the empty cans be tare weighed before attempting to make an accurate determination of the fill weight.

The water bath is undoubtedly the most important test on the production line. This test should submit the aerosol container to the most severe strain that it will meet during a typical package lifetime. Consequently any flaws, defects, or leaks should be detected during this test. The water bath test, in compliance with pertinent I. C. C. regulations has undoubtedly been one of the major factors contributing to the commendable safety record of the aerosol package.

In the case of most aerosol spray products, it is necessary that the total contents of the package be heated to 130° F. to comply with I.C.C. regulations. This is not possible unless the water bath temperature is in excess of 130° F. to allow the contents to reach the required temperature during the time the aerosol can is passing through the bath. The time in the bath and the temperature of the water must be established for each product, to provide compliance with the regulations. A small maximum reading thermometer attached to the dip tube of the valve may be used to determine internal temperature of the aerosol can during this operation.

Since the water bath is used as a method for observing leaks in the package, good lighting facilities should be installed over the tank. When leakers are encountered, the material leaking into the bath contaminates the water. A perpetual cleaning system for the entire hot tank operation is therefore needed and a water recirculation system is generally used for this purpose. Cross flow of the surface water is desirable to allow continual observation of the units being tested.

Since the pressure in the containers being submitted to the hot water bath test is probably quite high, it is extremely important that the water bath be provided with appropriate protection to eliminate the possibility of injury to the operator by exploding cans. This protection equipment should be sufficient to stop an exploding can from coming in contact with the operator, and at the same time allow good visibility of the units being tested.

Since the basic purpose of the pressurized package is to provide an automatic dispensing system, it is essential that the dispensing valve work satisfactorily. With only a couple of exceptions, we spray test 100 per cent of our production. If a conventional spray package is being filled, then these packages are generally spray tested automatically with an observer watching that the valve mechanism dispenses product, and further that following this test the valve mechanism shuts off satisfactorily. Whenever a special valve configuration is used—such as in the mechanical break up buttons — and where a particular spray pattern is desired, spray testing is done by hand. This allows the individual spray test operator to observe and evaluate the spray pattern. This latter method of spray testing is used to eliminate even a small number of faultily molded or defective parts in the valve.

Only basic and major quality control tests commonly performed on today's aerosols have been presented. As new aerosol products emerge and demands on the quality of existing special products increase, additional and more specific test methods will be needed. Unfortunately these will add to the cost of a thorough quality control program, which is expensive even now. However, the filler will find himself reimbursed with interest for these outlays, since they are a prerequisite for his success.■

Pharmaceutical Aerosols

By John C. Armstrong,
Armstrong Laboratories, W. Roxbury, Mass.

SPECIAL quality control measures which are applicable to aerosol loading of pharmaceuticals only, do not exist, I believe. However, certain quality controls associated with aerosol filling in general must be given more emphasis and be subject to closer acceptable limits in the case of pharmaceuticals. In this paper we shall therefore review the overall quality control procedures associated with aerosol loading in general, and then present in more detail control measures which require special emphasis in connection with pharmaceuticals packaging.

1. *Propellant Certifications:* Generally speaking, the filler relies on the propellant manufacturer to maintain consistently high propellant standards. Most of us will agree that the highest practical standards have been maintained by all propellant manufacturers throughout the history of the aerosol industry. In aerosol pharmaceutical filling, however, recorded certification of propellant in single tons and tank load quantities is often required by the pharmaceutical manufacturer and the Food & Drug Administration. This may

(*Turn to Page* 83)

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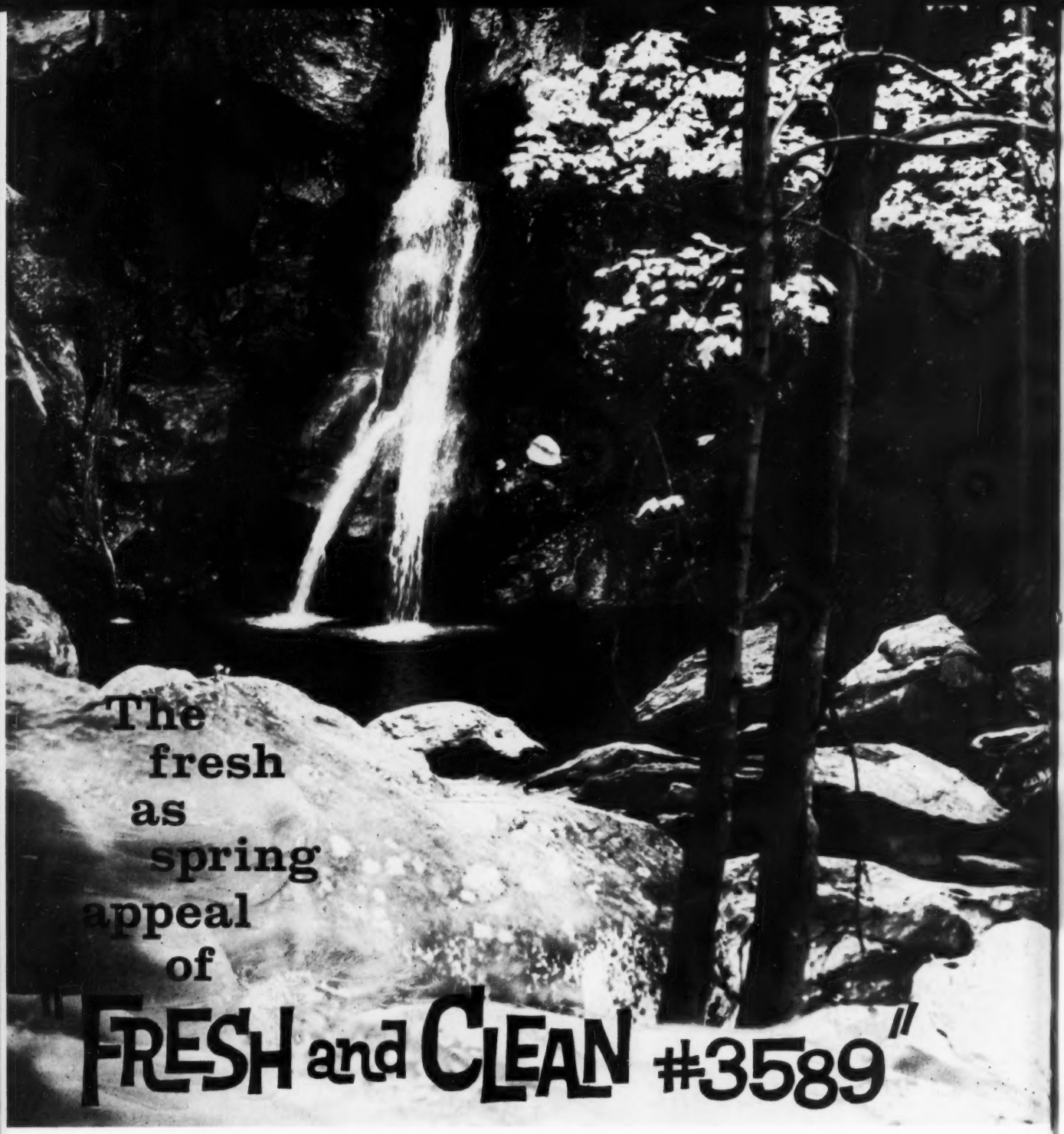

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involve no more than vapor pressure checks at two temperatures, and it may be performed at the propellant manufacturer's level or at the filler's laboratory, or, preferably, both. Further double checks should be made at the point of filling, as assurance against contamination or changes in propellant ratios.

2. *Assays of finished concentrate prior to filling:* This subject cannot be dealt with here specifically because of obvious variations in procedures, depending on the active ingredients to be examined. In aerosol pharmaceutical filling, however, assays are often required which take one half to two hours to perform, and must be conducted as often as four times per day. Assay samples are taken directly from the filling line, periodically.

3. *Sampling of incoming components such as containers, valves, actuators, overcaps, etc.:* It is desirable to have all components in the plant enough in advance of a project to make incoming inspection meaningful in the event trouble should be indicated. If sufficient time is not allowed and the operation is committed timewise, one can only hope that the rejects will not be of sufficient severity to cancel the operation completely until replacements for rejected components can be obtained.

First, a sampling is made in accordance with Mil Standards 105-B according to lot size. (Mil Standard 105-B may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 40 cents.) For example, for a lot of from 3200 to 8000, a single sampling would be 225 pieces. Examination of these samples indicates acceptance or rejection according to an established acceptable quality limit. In aerosol pharmaceuticals, a special area for concern is valves. Let us remember that, in the case of the metered valve used in products for inhalation, therapy type dosage is as important as in the

John Armstrong

pill. Special attributes required in this particular product are metering efficiency and dosage delivery in milligrams. Classifications of rejects are as follows: no fire, weak spray, no cut-off, and others. How can these faults be determined without actual loading and assembly? Physical qualities such as dimensions, gasket material, durometer, etc. can be determined in advance of running. Spray test, leak test and dosage determination can be performed only in a preproduction run.

4. *Statistical quality control methods employed in controlling and recording filling accuracy of concentrate and propellant:* The normal procedure for weight control is to periodically introduce four tared containers concurrently into the line. They are removed, weighed, and recorded individually on a plus or minus increment method, plotting the average and the range on the production weight chart. A copy of this chart may be incorporated in the final report after the run is over. In pharmaceutical filling, it is universal to adjust the lower control limit to the stated weight of the ingredient statement on the label.

5. *Sampling of previous day's production:* In addition to the previously mentioned controls, we have instituted at Armstrong Laboratories a further control measure which has become a regular procedure in connection with aerosol pharmaceuticals. This involves taking a sampling of the previous day's production and applying all the practical quality control checks that are possible at the time. These include: overall weight check, pressure test, leak test, spray test, and dosage check. This routine minimizes the risk of trouble caused as a function of time and serves as a good double check on regular quality control during filling. An example of function of time rejects is improper valve operation caused by swelling of gaskets or other synthetic valve components.

Application of all quality control procedures for pharmaceutical aerosol products must be supplemented by a healthy respect for the principles which dictate their use and by education of operating personnel in these principles.■

Infrared Absorption Spectroscopy

By Daniel H. Terry and J. A. Versocki,
Boyle-Midway Division, American Home Products Corp.,
Cranford, N. J.

THE usefulness of infrared absorption spectroscopy as an analytical tool has increased tremendously during the past few decades. It is becoming recognized as the most powerful tool available for the rapid identification and measurement of organic compounds. There can be no doubt that this means of analysis will become increasingly important in the years ahead. In fact, the pattern of chemical analysis in a large number of research and control laboratories in industry, private research organizations and colleges has already been definitely affected by the introduction of the infrared analytical technique.

As an increasing number of companies and colleges avail themselves of this analytical tool, the

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amount of data accumulated will be impressive. A growing volume of the information developed through infrared is being published, and will give impetus to further publications and broader dissemination of the use of infrared spectrophotometry as an analytical tool.

The rapid growth of the number of problems that are being solved by spectroscopic methods is due to two major developments. First of all, the combined efforts of chemist, physicists, instrument designers, electronic and optical engineers has aided in the development of spectrophotometers that are convenient to use, less expensive than formerly, and accurate enough for general application. This type of equipment has reduced the time required to obtain the data on a given compound or product from a matter of hours and some times days to mere minutes. In addition, catalogues of reference spectra have been increasing in size and usefulness. Importance of such libraries cannot be over-emphasized since the identification of unknowns by infrared spectroscopy involves matching the spectrum of an unknown with that of a known compound. Infrared spectroscopy, like all analytical techniques, gives only one comparable conclusion which is: two samples having the same spectrum are the same substance.

It should be kept in mind that infrared spectroscopy is a far more fundamental approach to analysis by instrument than has previously been readily available. Infrared instruments are designed to measure the characteristic vibration of a sample by passing through it infrared wavelengths, an interval at a time, and recording which wavelengths have been absorbed. The recorded infrared spectrum is a plot of the transmittance of the sample vs. the wavelength of the radiation. It is a measurement of a fundamental property of the sample and, therefore, can be used to characterize

Daniel H. Terry

the sample and determine its concentration.

Principles of Technique

What is infrared? Infrared is the portion of electromagnetic spectrum starting at the deep red and extending out to the microwave or very short radar region. In other words, infrared is between visible light and air-borne radar. It is measured in terms of the wavelength unit, the micron, which is one-thousandth of a millimeter, symbolized by the Greek letter μ. The visible region starts at 0.4 of a micron and extends to the red about 0.7 of a micron. Infrared extends from 0.7 of a micron to beyond 200 microns. The most useful region for the chemist is from 2.5 to 15 microns, termed the "fundamental" region.

All molecules are made up of atoms connected by chemical bonds. These atoms vibrate about an equilibrium position with various frequencies. These atoms or atomic groups are in continuous motion in relation to each other; and each molecule has specific vibrational frequencies for these motions. Absorption is produced by interaction between infrared radiation and a periodically changing electromagnetic field in the molecule produced by bond and molecular vibrations and rotations. These properties are, to a great extent, unique for each molecule, which makes infrared a valuable tool for quantitative analysis and qualitative control.

Infrared can be used to advantage in the laboratory in quality control or qualitative analysis, quantitative analysis, identifying unknowns and for maintaining permanent records of compounds analyzed and tested. How can the infrared spectrum be useful to chemists in the laboratory? It gives helpful information about the molecular structure of a compound. Organic chemicals are largely made up of different combinations of atomic building blocks called functional groups such hydroxyl group, amino group, methyl group, ketone group, nitrile group, ether group, carboxyl group, thio group, etc. These functional groups have characteristic absorption bands in certain parts of the infrared spectrum. An unknown compound can be characterized by checking the presence or absence of one or more of these groups. Furthermore, the presence and location of absorption bands gives information also on how the atomic groups are assembled in the molecule.

Spectra correlation charts provide a key to the location of characteristic absorption bands of the most common functional groups. Band assignments for thousands of organic compounds are available in standard references. As a result, the chemist can readily determine the major aspects of an unknown structure by band identification and match the unknown to his spectral library in a few minutes.

In quality control procedures, the infrared spectrophotometer is widely employed to check product purity. It also plays an important role through all processing steps from raw material checks to following the progress of a reaction. Infrared spectrophotometry is used also to analyze and check the finished product. It serves as a means of establishing empirical limits of material acceptance and as a specification for a product's

(*Turn to Page* 104)

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Analysis of

Phenolic Disinfectants

By D. E. Dean*, R. Suffis and A. Levy
Analytical Development Laboratory
Shulton, Inc., Clifton, N. J.

PHENOLS and aromatic amines have widespread use in the formulation of toiletries products. Our laboratory has found their analyses in mixtures to be a common and difficult problem. The literature lists several ways for their determination. Potentiometric titrimetry (1) or direct absorption spectrophotometry (2,3,4) are frequently applicable. However, these techniques may be limited by their lack of sensitivity and/or specificity. We have largely overcome these problems by utilizing the dependence of ultraviolet spectra upon pH of phenols and aromatic amines. Observed spectral differences at selected pH levels are sufficiently specific to offer a useful analysis of these compounds.

Solutions of phenols, when made alkaline, exhibit a shift to longer wavelengths and an absorbance intensification of their ultraviolet spectra. This alkaline shift is useful for estimating total phenols (5,6,7,8). However, as all phenols show this effect, the ultraviolet spectra will not differentiate them in mixtures.

An examination of possible resonance structures for the acid and alkaline forms of phenol demonstrate the reason for the shift. Figure 1 shows these structures. Quinoid resonance forms make a large contribution to the phenolate ion, but not to phenol itself. When quinoid structures can be assigned, absorbance will occur at longer wavelengths. Therefore phenol absorbs at a longer wavelength in alkaline solution than in acid.

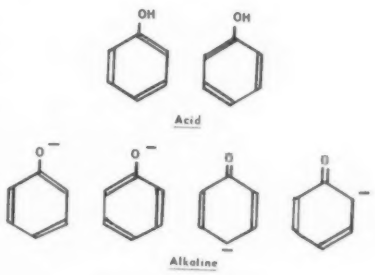

Figure 1. Resonance structures of acid and alkaline forms of phenol.

By gradually raising the pH of a phenolic solution, one can observe the transition from phenol to phenolate ion. When the pH equals the pK_a of the compound the two forms are at the same concentration. This is expressed by the following equation (7):

$$pH = pK_a + \log \frac{[base]}{[acid]}$$

The use of pK_a values to differentiate phenols in mixtures is the basis of our analytical scheme. By the proper choice of buffers, one phenol will undergo complete or partial ionization whereas the other will not significantly dissociate. Thus, the spectrum of one will change with no change in the other.

Table I. BASIC FORM: ACID FORM

pH	Phenol A	Phenol B
6	1:1,000	1:100,000
7	1:100	1:10,000
8	1:10	1:1,000
9	1:1	1:100
10	10:1	1:10
11	100:1	1:1
12	1,000:1	10:1
13	10,000:1	100:1
14	100,000:1	1,000:1

One can illustrate this point by reference to a hypothetical case. In a solution containing two phenols, phenol A has a pK_a equal to nine; phenol B has a pK_a equal to eleven. We will assume these phenols have equal absorbance maxima and intensity. The relation of pH to the ratio of concentrations of basic form to acid form is indicated in Table I.

At pH 6, A and B are predominantly present in their acid forms. At pH 9, B is still about 99% acid whereas A is now only 50% in its acid form.

To analyze A in the presence of B measure the decreases in spectral intensity of the acid form or the increase in intensity of the basic form. Conversely, by analagous reasoning, B may be measured in the presence of A by the absorbance difference in solutions at pH 14 and pH 11.

Our example illustrates that a pK_a difference of 2 units is sufficient for analysis. Actual cases may require differences of more or less than 2 units, depending upon position and intensity of the absorption maxima.

Link of ultraviolet absorption spectra to pH is used to detect hexachlorophene and salicylanilide, also to determine the presence of aromatic amines in toiletries

*Paper presented before Scientific Section, Toilet Goods Association, New York, Nov. 30, 1960.

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Table II.

pH	Hexachlorophene 1% E_{1cm}	Hexachlorophene Absorption Maximum	Salicylanilide 1% E_{1cm}	Salicylanilide Absorption Maxima
13	293	320 mu	627	272 mu
			400	338
10.5	215	320	616	272
			396	338
9	154	303	611	272
			395	338
7	139	299	503	268

Table III.

pH	p-phenylenediamine 1% E_{1cm}	p-phenylenediamine Absorption Maximum	nitro-p-phenylenediamine 1% E_{1cm}	nitro-p-phenylenediamine Absorption Maximum
7	868	240 mu	417	240 mu
4.5	815	235	417	231
2.4	218	235	428	231
1	<1	—	428	231
5N. HCl	<1	—	402	231

Many pK_a values for phenols are readily available in the literature (9). For compounds not listed, the values can be predicted if the effects of the substituent groups are known. Electron withdrawing groups, such as nitro, ketone, aldehyde, carboxylic acid, etc., in the ortho and para positions facilitate the formation of phenolate ion. This lowers the pK_a value. A similar, but smaller, effect will be found with meta substitution. On the other hand, large molecular size substituents in the ortho position will raise the pK_a value. This is due to steric inhibition which makes the phenolate ion more difficult to form.

We have used this principle for the analysis of toiletries products. An example is the determination of hexachlorophene in a product also containing salicylanilide. As these compounds are both phenols and present in small amounts, our method offered the best analytical approach. pK_a values are not listed for either material. Therefore we estimated the values based on chemical structure. Hexachlorophene is substituted on both ortho positions. The resulting steric inhibition would be expected to raise the pKa value. Conversely, salicylanilide with its electron withdrawing anilide group, should have a lower pK_a value. To demonstrate these facts ultraviolet spectra at various pH levels are presented in Figure 2. The salicylanilide shows no change in spectrum between pH 13 and pH 9. Apparently its pK_a value is less than 9. The intensity of hexachlorophene decreases as the pH is lowered by the same amount. The absorbance maximum also shifts from 320 $m\mu$ to 303 $m\mu$. These observations are summarized in Table II. The concentration of hexachlorophene in this product is directly proportional to the change of intensity at 320 $m\mu$ as the pH is lowered from 13 to 9.

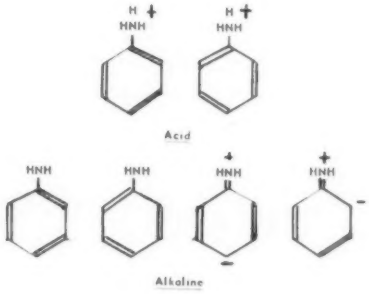
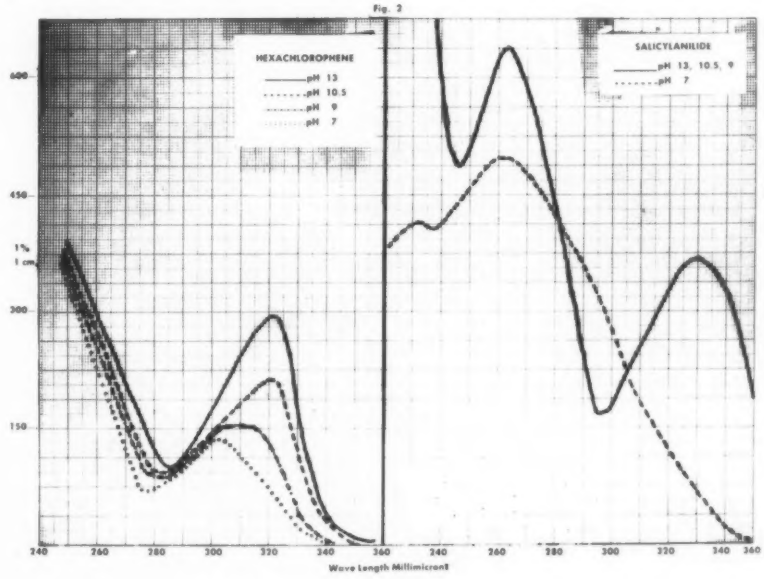


Figure 3 – Resonance structures of of acid and alkaline forms of aniline.

Fig. 2



The change in ultraviolet spectra with pH for aromatic amines has also been reported (9). The acidification of a solution of an aromatic amine will cause a shift of its ultraviolet maximum to shorter wavelengths. This is sometimes accompanied by a decrease in the intensity of the band. This effect may be attributed to the fact that, while aniline has a possible quinoid resonance structure, the aniline cation, produced upon acidification, may not exist in this form (Figure 3). The anilinium ion no longer has the unshared pair of electrons on the nitrogen atom that makes the quinoid resonance form possible.

The presence of electron withdrawing substituents on the benzene ring tends to stabilize the basic form of the aniline derivative. This makes it more difficult to form the aniline cation and consequently lowers the pK_a value.

We have applied this method for the determination of p-phenylenediamine in the presence of nitro-p-phenylenediamine. The pK_a values for the two ionizations of p-phenylenediamine are reported as 6.2 and 2.7 (9). The literature lists no values for nitro-

(*Turn to Page* 101)

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Epolene N	2500	2500	0.928	1
Epolene HD	1500	340	0.938	0.5
Epolene LV	1500	360	0.925	3
Epolene C	7000	16,000	0.907	7

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Safety Aspects of DDVP

DDVP insecticide applied in human dwellings by pest control operators does not present hazards to inhabitants, tests show

By E. A. Neuwirth* and T. T. White,
Shell Chemical Co.
New York

COMMONLY known as DDVP, "Vapona"** insecticide has been found very effective for the control of a wide range of insect pests. (1) It is especially useful against household insects because of its effectiveness at very low concentrations. (2, 3) In order to establish whether or not practical methods of applying the insecticide for insect control by pest control operators presents a hazard to the applicator or to the inhabitants of the treated dwelling, a study was made to determine the atmospheric concentrations of "Vapona" developed during and following application of the insecticide solutions under various conditions, including excessive dosages. Although there is no doubt that DDVP insecticide is a toxic chemical to animals and people, it possesses properties that should allow its use without developing vapor concentrations that are known to be hazardous. The results obtained in this study demonstrate that the insecticide is indeed safe to use in the house when applied under conditions known to give good pest control.

Vapor Toxicity

The nonhazardous nature of DDVP insecticide concentrations encountered in the atmosphere following practical application has been well documented in the literature. (1, 5, 6) In early respiratory toxicity studies conducted with the insecticide, Durham et al found no signs of organophosphorus poisoning when monkeys and weanling white rats were exposed for two weeks to DDVP insecticide vapors in a Peet-Grady chamber that had been sprayed liberally with solutions of the insecticide. (4) In this study, the insecticide vapor concentration reached a maximum of 6 mmg. per liter soon after the spraying. Its concentration decreased to 3 mmg. per liter after 20 hours and to less than 1 mmg. per liter after the third day. The vapor concentration of DDVP insecticide persisted at a level of 0.1 to 0.2 mmg. per liter for the remainder of the test period.

Several vapor exposure studies were conducted in tobacco warehouses by Durham et al in 1956 and 1957. (5) In the first test, DDVP insecticide was dissolved in perchloroethylene and sprinkled on the floors at dosages leading to 1, 2 and 10 mg. of the insecticide per cu. ft. of air. In later tests, the insecticide was applied as a thermal aerosol at dosages leading to 0.5, 1 and 2 mg. per cu. ft. Humans occupied the treated areas on two consecutive days for eight hours per day, and rats and monkeys were confined in the areas for a period up to approximately 45 days, on a continuous basis. At the 2 mg. per cu. ft. dosage level, the maximum atmospheric concentration of DDVP insecticide was found to be 2.2 mmg. per liter of air, four hours after application. This level decreased to 0.5 and 0.14 mmg. per liter in 12 and 24 hours, respectively. No signs or symptoms of organophosphorus intoxication were noted either in the humans or in the experimental animals during the exposure period.

Tracy made some studies in which 18 persons in six families were exposed to vapors resulting from the household application of "Vapona" insecticide at a dosage rate of 0.5 mg. of the insecticide per cu. ft. of air. (6) These people had daily exposures of from three to 18 hours per day varying in length from four days to two weeks. Blood cholinesterase tests were made periodically and a significant depression was not observed in any instance, either in the erythrocytes or plasma of the subjects.

Experimental

In order to establish whether or not practical methods of applying "Vapona" insecticide present a hazard to the inhabitants of the treated dwelling, tests were made to determine the atmospheric concentrations of DDVP insecticide during and following application of insecticide solutions under various conditions. In addition to recommended dosages, several concentrations were used to obtain vapor concentrations in excess of those normally encountered in pest

*Paper presented at 47th annual meeting, Chemical Specialties Manufacturers Association, Hollywood, Fla., Dec. 6, 1960.

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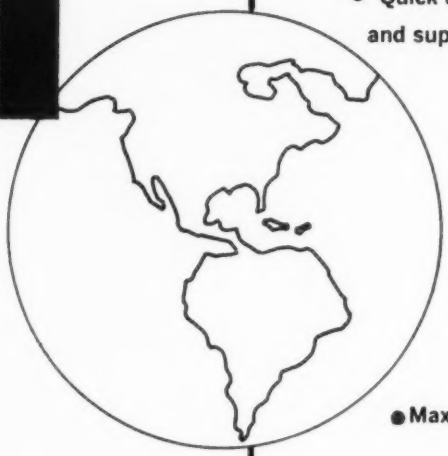

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control work. Samples of air in dwellings were taken during and after application of the insecticide in the following places:

1. Homes with all windows and doors closed and with all sources of air flow sealed with tape;
2. Homes with all windows and doors closed but with no special precautions against air flow; and
3. Individual rooms sealed with tape to minimize air flow.

The homes used were located in two different geographical areas and their construction and furnishings varied considerably.

In the tests simulating normal dosage and usage, a 0.5% DDVP insecticide solution was used at a dosage of 0.5 to 1.0 mg. of insecticide per cu. ft. of air. To generate excessive, greater-than-normal vapor concentrations, use was made of 2.5% DDVP insecticide solutions (at normal rate of application) or 0.5% DDVP insecticide solutions were applied in greater-than-normal volumes. In either case, the dosage was about 2 mg. per cu. ft. of air.

Pertinent details of the test conditions were as follows:

Solutions Used

DDVP Insecticide Concentration, %	Solvent
0.5	Shell Sol 71 (Oil)
0.5	Apco Regular (Deodorized Kerosene)
0.5	Water Emulsion
0.2	Shell Sol 71 (Oil)
2.5	Shell Sol 71 (Oil)
2.5	Apco Regular (Deodorized Kerosene)

Test Details

Test 1

Location: Dallas, Texas.

Description of Structure: Furnished, ranch-type, brick house.

Living room — carpeted floors; hallway and dining room — asphalt tile floors; bedrooms (2)—hardwood floors; bathroom (1) — tile floors and walls; walls — papered and flat painted.

Test Conditions: Doors, windows, and cooling vents sealed with tape; no ventilation.

Type of Treatment: Spot treatment with 0.5% DDVP insecticide solution (oil) in a one-gallon stainless steel sprayer; coarse spray; application by a pest control operator.

Test 2

Location: Dallas, Texas.

Description of Structure: Furnished, ranch-type, brick house.

Living room — carpeted floors; dining room—carpeted floors; bedrooms (3)—hardwood floors with rugs; kitchen —linoleum floors; bath (1)—tile floors and walls.

Test Conditions: Doors and windows closed throughout test; no extra sealing; front door was used at intervals throughout the test.

Type of Treatment: Same as Test 1.

Test 3

Location: Tarrytown, New York.

Description of Structure: Unfurnished, upstairs bedroom in a two-story framehouse. Storm windows on two existing windows; walls—freshly painted (flat); floors — uncovered hardwood.

Test Conditions: Windows closed and door cracks filled with paper; vents closed.

Type of Treatment: 0.5% DDVP insecticide solution (oil) applied to baseboard and cracks in walls with a paint brush.

Test 4

Location: Tarrytown, New York.

Description of Structure: Same as Test 3 except room was furnished.

Test Conditions: Same as Test 3.

Type of Treatment: Same as Test 3 except that a 0.2% DDVP insecticide solution (oil) was used.

Test 5

Location: Dallas, Texas.

Description of Structure: Bathroom in a motel; no windows; floor — asphalt tile; walls — tile and painted brick; ceiling—"Celotex"; fixtures—porcelain and "Formica".

Test Conditions: Vents and door sealed with tape; all absorbent material (such as paper, bath mat, shower curtain, etc.) removed.

Type of Treatment: Sprayed "Formica" sink top and tile wall with 0.5% DDVP insecticide water emulsion using a one-gallon stainless steel sprayer. Application by pest control operator.

Test 6

Same type room and conditions as Test 5 except area sprayed with 0.5% DDVP insecticide solution in oil.

Test 7

Location: Dallas, Texas

Description of Structure: One-story, furnished, frame house; living room—carpeted floor; den — asphalt tile floor; kitchen — linoleum floor; bedrooms (3)—hardwood floors; bathrooms (2) — tiled; walls — all painted.

Test Conditions: Doors and windows closed throughout test.

Type of Treatment: Spot treatment using 2.5% DDVP insecticide solution (kerosene) in a one-gallon stainless steel sprayer; coarse spray; application by pest control operator.

Test 8

Same as Test 5 except a 2.5% DDVP insecticide solution (oil) was applied.

Test 9

Location: Lakehurst, New Jersey.

Description of Structure: Vacant, two-story home (garden apartment); kitchen — linoleum floor and painted walls; living room — hardwood floor and painted walls; bedrooms (2) upstairs — hardwood floors and painted walls; bathroom — tiled floor and walls.

Test Conditions: Windows and doors closed throughout test; storm window closed; vents closed.

Type of Treatment: Walls, stairs, empty closets, and cabinets sprayed; entire house treated twice in order to use up entire sprayer load; three quarts of 0.2% DDVP insecticide solution (oil) used; application by pest control operator.

Test 10

Location: Dallas, Texas.

Description of Structure: Large, vacant, ranch-type house; all rooms (5) asphalt tile floors; bathrooms (2)—tiled; all walls — lacquered panel board; ceilings — high with rafters.

Test Conditions: Doors, windows, and vents sealed with tape (to prevent any movement of air in or out of the home).

Type of Treatment: Cabinets, walls, and baseboard sprayed (in addition to normal spot spraying); 2.5% DDVP insecticide solution (oil); coarse spray; application by pest control operator.

Sampling and Analysis

Atmospheric samples were obtained by pulling air at a rate of 0.5 cu. ft. per min. through a glass column containing 30 g of activated alumina. To allow the quantitative detection of "Vapona" insecticide at levels below 0.1 mmg. per liter of air, samples of 16 to 25 cu. ft. of air were taken. Recovery data and collection efficiency of the sampling system were determined in laboratory tests prior to actual field studies. At flow rates of 0.4 to 0.5 cu. ft. per min., 40 to 50 minutes were required to obtain each sample. The air-sampling pump used in this work was employed almost continuously for periods of up to 16 hours per day for a week. (7)

In the homes, the sample tube and pump were moved from room to room in a fixed pattern during the allotted sampling periods. In the smaller rooms (bath-

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Table I. Concentration of "Vapona*" Insecticide Vapor in Atmosphere of Dwellings Following Application of Insecticide at Recommended Dosage Rates

Test No.	Formulation Used	Insecticide Soln. Applied, fl. oz. Amt. of	Area (A) Treated, Ft^2	Total Vol (V), Ft^3	Ratio of V to A	Relative Humidity, %	Temp., °F	Insecticide Dosage Calculated after Treatment, mg/ft^3	"Vapona" Insecticide in the Atmosphere, mmg/liter of Air: Immediately after Treatment	2 Hr. After	4 Hr. After	8 Hr. After	20 Hr. After	24 to 27 Hr. After
1	0.5% "Vapona" Insecticide in Shell Sol 71	79.3	380	8,312	22/1	60	89	1.12	0.43	0.47	0.24	0.21	——	<0.09
2	0.5% "Vapona" Insecticide in Deodorized Kerosene	14.7	232	9,388	40/1	53	90	0.20	0.35	<0.09	<0.09	0.21	——	<0.09
3	0.5% "Vapona" Insecticide in Shell Sol 71	16.0	20.2	1,816	38/1	47	71	1.00	0.08	0.14	0.20	0.10	<0.05	
4	0.2% "Vapona" Insecticide in Shell Sol 71	14.4	35.2	1,311	37/1	45	68	0.50	0.09	0.06	0.13	<0.05	<0.05	
5	0.5% "Vapona" Insecticide Emulsion in H_2O	1.7	14.8	296	20/1	67-51	77-85	0.84	1.00	0.21	0.36	<0.09	——	<0.09
6	0.5% "Vapona" Insecticide in Shell Sol 71	1.7	14.8	296	20/1	58	81	0.68	1.28	1.21	0.26	<0.09	——	<0.09

*Shell trademark.

rooms), the sample tube was placed approximately five feet from the floor in the center of the enclosure. Following sample collection, the sample tube was disconnected from the pump and the alumina immediately extracted with 100 ml of 1:1 H_2O-acetone mixture. The extract was collected in sample bottles containing 2 to 3 ml of 0.1 N. sodium hydroxide. (In the presence of caustic, DDVP insecticide hydrolyzes to dimethyl sodium phosphate which is non-volatile.) The insecticide content was determined by a total-phosphorus method. (8) The DDVP insecticide concentration in the air sample was determined by relating the amount found in the sample tube to the volume of air sampled.

Results

Table I shows the "Vapona" insecticide concentration in the atmosphere of enclosures that were treated, in a manner typical for roach control, by a pest control operator using dilute solutions of "Vapona" insecticide. The maximum concentration of "Vapona" insecticide in the atmosphere was reached within four hours after the treatment was made. In a typical home without ventilation (Test 1), the maximum concentration (0.35 mmg. per liter) was reached immediately after treatment. In a sealed home (Test 2), the maximum concentration (0.47 mmg. per liter) was reached two hours after treatment. In sealed, small rooms, the maximum concentration of "Vapona" insecticide was 1.00 mmg. per liter of air following application of a 0.5% water emulsion, and 1.28 mmg. per liter of air, following application of a 0.5% oil solution. In both instances, these concentrations were reached immediately after spraying.

Table II shows the concentrations of "Vapona" insecticide in the air of homes resulting from the application of the normal volume of solutions containing five times the recommended concentration (2.5% vs. 0.5%) and from the application of excessive volumes of a 0.5% solution calculated to give a dosage of 2.0 mg. per cu. ft., instead of 0.5 to 1.0 mg. per cu. ft.

(*Turn to Page* 138)

Table II. Concentration of "Vapona*" Insecticide Vapor in Atmosphere of Dwellings Following Application of Insecticide at Excessive Dosage Rates

Test No.	Formulation Used	Amt. of Insecticide Soln. Applied, fl. oz.	Area (A) Treated, Ft^2	Total Vol (V), Ft^3	Ratio of V to A	Relative Humidity, %	Temp., °F	Insecticide Dosage Calculated after Treatment, mg/ft^3	"Vapona" Insecticide in the Atmosphere, mmg/liter of Air: Immediately after Treatment	2 Hr. After	4 Hr. After	8 Hr. After	20 Hr. After	24-27 Hr. After	55 Hr. After
7	2.5% "Vapona" Insecticide in Deodorized Kerosene	49.5	284	12,550	44/1	61-37	82-92	2.36	1.07	0.55	<0.09	0.14	——	<0.09	——
8	2.5% "Vapona" Insecticide in Shell Sol 71	1.7	14.8	296	20/1	55	80	3.40	3.30	1.35	0.47	0.28	——	0.17	——
9	0.2% "Vapona" Insecticide in Shell Sol 71	96.0	Unknown	6,000	——	49	78	2.0	3.60	1.50	1.00	——	0.30	——	——
10	2.5% "Vapona" Insecticide in Deodorized Kerosene	97.9	545	15,714	28/1	55	89	3.74	4.38	2.49	2.56	2.30	——	0.43	0.14

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FMC Names Representative

F. Lee Terhune has been named west coast representative for the chemicals and plastics division of Food Machinery and Chemical Corp., New York, it was announced recently. He will handle sales of plasticizers, organic intermediates, phosphorus chemicals and other organic chemicals from the division's Los Angeles office.

With the Borden Chemical Company for seven years before joining FMC, Mr. Terhune has worked in vinyl compounding both in technical service and in the laboratory.

—★—

Enjay Chemical Expands

Plans for expanded facilities that will "almost double" production capacity of benzene and toluene at its Baytown (Texas) Refinery were announced recently by Enjay Chemical Co., New York, a division of Humble Oil & Refining Co. The new facilities are scheduled to go into operation early in 1962.

Phenol Disinfectants

(*From Page* 89)

p-phenylenediamine. However, we can predict that the presence of the nitro group will lower the pK_a. The spectra shown demonstrate these facts (Figure 4). The spectrum of p-phenylenediamine at pH 7 is that of the basic form while that at pH 4.5 shows that the first ionization has taken place. Note that the maximum has shifted from 240 to 235 mu. At pH 2.4 the intensity has decreased indicating the second ionization to be partially completed. At pH 1 the spectrum is that of the doubly ionized cation which has insignificant ultraviolet absorption in this region.

The spectrum of the nitro-p-phenylenediamine at pH 7 shows a maximum at 240 mu and is wholly in the basic form. At pH 4.5, 2.4 and 1 the spectrum is shifted to 231 mu indicating that the first ionization has taken place. At even lower pH values, such as that obtained with 5N hydrochloric acid, the intensity of the ultraviolet maximum has decreased only slightly. This means that the second ionization has taken place to a very small degree. These data are summarized in Table III. The p-phenylenediamine may be determined in this case by measuring the decrease in absorbance at the 235 mu band as the pH is lowered from 4.5 to 1.

Thus far we have emphasized the analytical application of the correlation of pH and spectra. There are also some other areas of toiletries development in which this principle is of interest. An example is the formulation of suntan preparations. These are intended to absorb specific regions of ultraviolet radiation. Since both phenols and aromatic amines are used widely for this, special attention should be given to the pH of the formulation. The screen may have the desired characteristics in a neutral or slightly alkaline formula. However, the acid environment of the skin may shift the spectrum out of the proper range. Thus, knowledge of the pH dependence of these shifts will be useful in such formulating problems.

In conclusion, the dependence of ultraviolet spectra upon pH offers many analytical possibilities. We have presented a discussion of its use in the analysis of phenols and aromatic amines in mixtures. We have also mentioned its application in other areas of interest to the toiletries formulator. We hope these facts will be of use to the analyst and formulator alike.■

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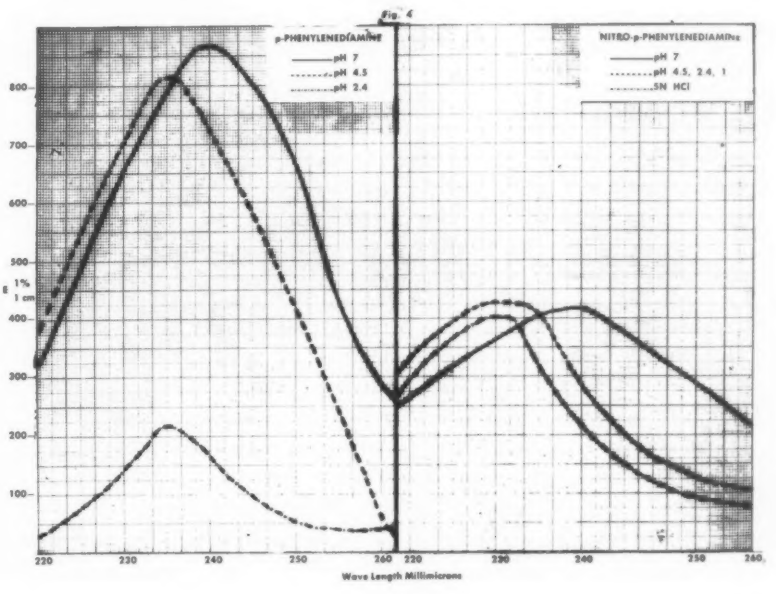
Figure 4



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Pine Oil Push

(*From Page* 58)

the Pine Cleaner Information Center to develop pattern speeches on how to clean with pine cleaner. These will be presented at women's clubs and in classrooms.

The campaign, as it gains momentum, "will have women looking for pine cleaner in the supermarket," according to R. S. Glover, Jr., manager of pine oil sales for Hercules.

How can the industrial pine oil consumer, the formulator and marketer of pine oil based cleaners and disinfectants best profit from this promotion effort on the part of the primary producer? In addition to sending copies of the *Reader's Digest* advertisement to his actual and potential customers, he should plan his own promotion efforts to tie in with the center's campaign, Hercules stresses.

Any formulator who can offer a constructive idea on how to promote pine cleaners and disinfectants to women, is encouraged to communicate with Mr. Glover.

Detergents in Sewage

(*From Page* 51)

each sampling shows a maximum during the summer (Series A) and a minimum during spring (Series C):

	Average ABS
Series A (Summer)	.034 ppm.
Series B (Winter)	.024 ppm.
Series C (Spring)	.015 ppm.

For orientation, it might be well to note that the proposed U.S. P.H.S. limit for ABS in drinking water is 0.5 ppm, which is more than 10 times the average amount of ABS found in the summer samples.

In concluding this committee report I can only repeat that through the sponsored work of the association we feel that we have uncovered sufficient scientific data to enlighten those responsible for water and waste disposal on the effects of ABS in their processing. The problems resulting from its use are not nearly as grave as originally pictured and may indeed disappear as continued work in the field adds to our knowledge.

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Hazardous Substances

(*From Page* 57)

Administration, having drawn upon its extensive scientific and legal resources, has published its regulations to the federal statute, thereby providing effective leadership in this new field.

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Monsanto Expands Plant

Monsanto Chemical Co., St. Louis, announced recently the completion of a 50 per cent expansion of its Anniston, Ala., plant for manufacturing parathion and methyl parathion insecticides. The facility, said to be the world's largest for producing these insect killers, will have an annual estimated capacity of 18 million pounds.

Quality Control

(*From Page* 85)

purity by the manufacturer as well as the supplier.

Differential Technique

Like many other laboratories, we have found the infrared spectrophotometer a great time saver and a very valuable method of running quality control and analyzing insecticidal products. Chemical analysis of multi-component insecticidal formulations is time consuming and in some cases practically impossible to perform accurately by normal methods. In our quality control work on insecticides in aerosols or in standard packages, we have found a differential analysis infrared technique to be a very convenient method to obtain the concentration of individual components in a mixture. This technique uses both beams of the infrared spectrophotometer. The differential method has been used for a number of years on a wide variety of problems where the interest has been mainly in the minor components of materials. By running one sample against the other in liquid cells, small differences show up. If the material in the sample beam absorbs more, the recorded band will go below the average. If the material in the reference beam absorbs more, the band will go above the average. These differences may be due either to differences in absorption or to differences in cell thickness. As mentioned above, by using a double beam type instrument, the

reference beam eliminates the absorption due to solvent. This method has been used successfully for the determination of small concentrations of impurities.

The differential analysis, successfully applied to certain multi-component insecticidal formulations, involves the preparation of working calibration curves to establish the Beer-Lambert relationship between absorption and concentration from a series of prepared standard solutions for each insecticide. Differential spectra of the standard solutions are made using specific spectral regions under specific spectrometric conditions such as cell length, slit width, etc. Key wavelengths are selected for each active ingredient. Absorptions are measured at these wavelengths using the base-line technique. Calibration curves are prepared for each active component at its particular key wavelength plotting absorption against concentration. The differential spectrum of the sample is recorded under the same conditions as in the calibrating procedure. Absorptions are measured at the key wavelengths of the respective insecticides and the concentration determined either by calculation or by reference to the respective calibration curves.

This differential analysis technique has been used successfully by a number of laboratories to analyze multi-component systems. Some of the systems which have been analyzed successfully by this method are DDT, thiocyanate and pyrethrins; also DDT, piperonyl butoxide and pyrethrins; and DDT, thiocyanate, piperonyl butoxide, lindane, pyrethrin, etc.

Use of the differential technique has resulted in a great saving of labor and time both in control of raw materials, concentrates used in packaging and also of finished aerosols as well as other types of packages. It has been used very successfully in the manufacture of aerosol products by controlling the raw materials, the concentrates and also checking the concentrate in

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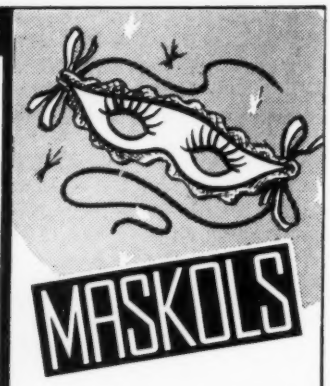

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the finished bomb. We have found the technique most helpful in checking perfumes, emulsions of resin waxes, polymers and emulsifiers, and many other items. Doubtless, infrared spectroscopy will find growing use in quality control work, quantitative analysis, determination of unknowns, and purity control, as existing data become more accessible through publications and through the cooperation of interested groups such as U.S. D.A., A.O.A.C., C.S.M.A., manufacturers, L.S.U. Workshop, etc. Furthermore, more unpublished data will be disseminated, methods standardized through collaborative analysis, and more spectra reference charts accumulated and available to infrared spectroscopists.

A combination of gas chromatograph and improved spectrophotometer would further aid in the solution of knotty problems seemingly impossible to solve by normal chemical methods.

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Trends in Nonionics

(*From Page* 47)

well score important competitive gains. This trend also points up the importance of developing strong technical relationships with the basic raw material suppliers who have a broad chemical base and who are working toward the goal of new product development.

Summary

In summary, nonionic surface active agent technology will be characterized over the next five years by increasing diversity of products, substantial changes in hydrophobe technology, growing understanding of the relationship of chemical structure to performance, and closer technical cooperation between the laboratories of the basic raw material suppliers and the detergent manufacturers. As a result, it is safe to predict that five years from now the detergent industry

will be consuming major quantities of synthetic organic chemicals not now considered as detergent raw materials – perhaps not even being commercially marketed today. The question that excites us all is—Who will develop the new raw materials, and who will find applications for them in detergent products?

Pesticide Act

(*From Page* 76)

try chemists for their assistance given us in the Association of Official Agricultural Chemists testing and adoption of useful and important methods. A number of them are serving as Associate Referees and many more as collaborators. While these chemists are not affiliated with the Branch, the role they have participated in has been of great help to us.

Other Checks

The Association of American Pest Control Officials also conducts a collaborative check program between state, government and industry laboratories. An arrangement has been concluded with the Association of Official Agricultural Chemists whereby they will accept for adoption and publication the satisfactory methods tested. The Chemistry Section also operates a methods clearing house in cooperation with the Association of American Pest Control Officials. New methods developed in our laboratories and others submitted to the clearing house committee are duplicated and distributed to the state officials, foreign agencies, and other interested parties. The Chemistry Section also advises other laboratories including those of many foreign countries on the solution of analytical problems and applicability of pesticide procedures.

In cases of composition deficiencies, it is the policy of our laboratories to have the deficient products checked by a second analyst using when possible different meth-

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Literature and price list available on request.

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ods, test solutions and instruments. As a result of these special precautions there have been only a few unfavorable criticisms regarding analyses reported on the immense number of notices of violations which have been issued since enactment of the Act.

Chemical Analysis

In our chemical analyses, we have found most of the products to be in compliance with label claims. A large number of the violations noted by our chemists are either unintentional or due primarily to carelessness by individual manufacturers. In a relatively few cases we have strongly suspected fraudulent intentions. Several of the numerous flagrantly adulterated and misbranded products encountered have been products labeled as pine oil disinfectants containing from 60 to 80 per cent of light wood distillate nature of turpentine instead of pine oil. Instead of being an effective disinfectant with a phenol coefficient of four or five, this product possessed a coefficient of approximately 0.25. Others were creosotes containing 40 per cent of kerosene and in another instance about 50 per cent water.

Among unregistered samples were brassieres labeled germicidally treated that our chemists analyzed and found small quantities of a mercury compound apparently phenyl mercuric borate. These could have been decidedly dangerous to babies when used by nursing mothers. Other products containing mercury and deemed dangerous and which were required to be taken off the market were baby bottles, tooth brushes, pillows and toy soldiers or animals. Needless to say chemical analysis of these products was extremely involved.

The sample summary label, and collection records for each product analyzed are forwarded by the various chemistry laboratories to the head of the Chemistry Section for review and preparation of the Report of the Chemistry Section.

Following a review of the sample reports if there appear to be no deficiencies in composition and the labels meet all the requirements of the Act for which the Chemistry Section is responsible, the sample reports are marked NAC (no adverse comment) and are forwarded to the other sections for review.

If deficiencies in composition are reported in the samples, it must be determined whether or not the deficiencies are minor or serious. We have no hard-and-fast rule or standards by which this can be done and each case must be handled individually. Generally speaking, deficiencies ranging from 2 to 3 per cent are regarded as minor but will not necessarily be ignored.

There are certain label defects which are considered to be more serious than others. Obviously the failure to express the statement of net contents in terms of avoirdupois units would not be considered to be as serious as failure of the label to bear an ingredient statement. These are points which are taken into consideration in deciding what specific recommendations are to be made for regulatory action.

The report of the Chemistry Section will ordinarily allege misbranding and/or adulteration or it will charge that the composition of the product differs from that submitted at the time the product was registered. It will contain a detailed explanation of these charges and finally a recommendation for appropriate regulatory action. It may be recommended (1) that the case be placed in temporary or permanent abeyance (2) that the shipment be seized (3) that the shipper be formally notified that the product in question appears to be in violation of the Act or (4) that the matter be taken up informally with the shipper.

The Reports of the Chemistry Section along with the results reported in the sample summaries are reviewed by some of the other sections and frequently provides

the basis for their recommendations for regulatory action.

We have described somewhat in detail the activities and responsibilities of the chemist in the administration of the Federal Insecticide, Fungicide, and Rodenticide Act. However, it is only fair to state in conclusion that the overall administration of this Act requires the participation of many other scientific specialists within the Branch.■

Earning a Position

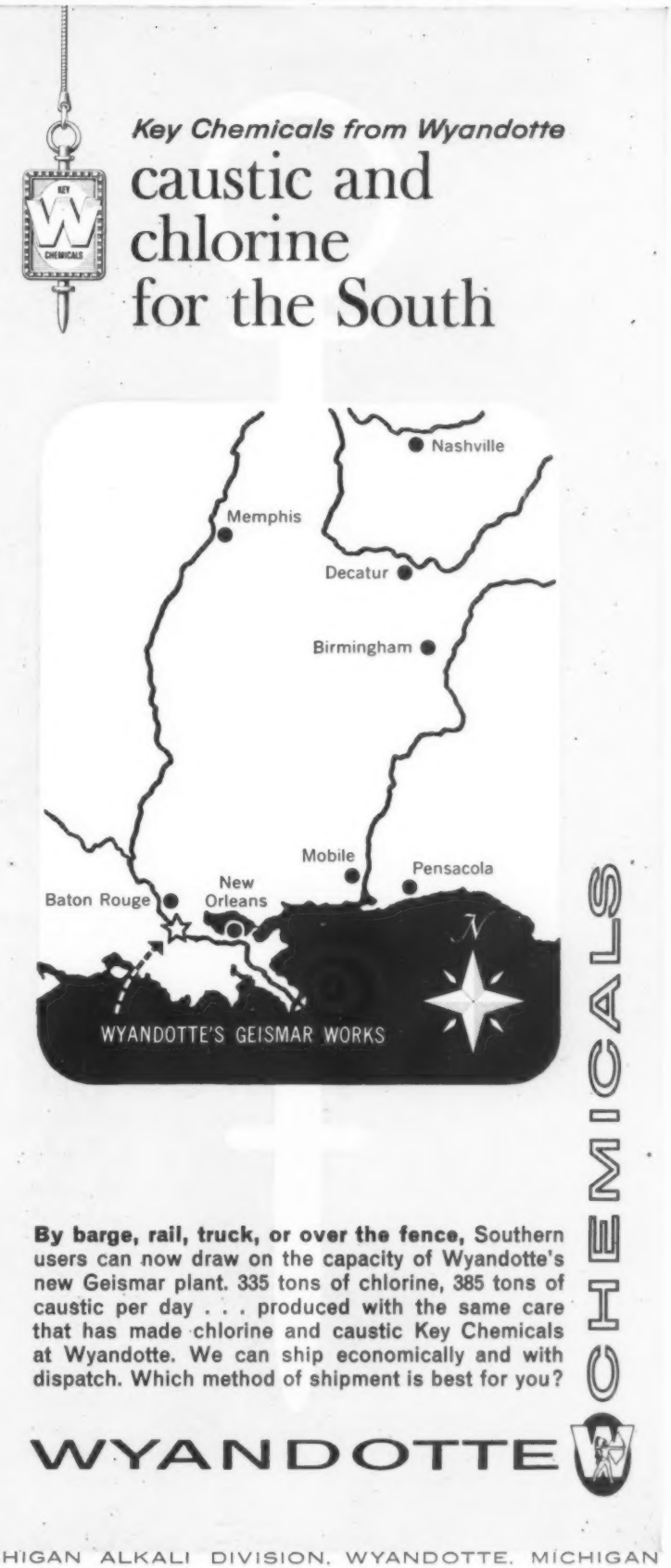
(*From Page* 55)

market research must be employed to find ways to increase the amount of surfactant that could be profitably used in that field.

4. If the overall driving force is low, then the company must concentrate on doing sufficient applications research work to increase the "chances of technical success." In some cases this applications research work may also be useful in reducing the prospect's cost of testing.

5. Where the advantages are relatively small and the chances of technical success are unknown (as in a new product), it is probably best to avoid at first those industries where the cost of testing is high, such as household uses, polymerization and lubricating oil additives.

I hope that you do not feel that we have come through a jungle of generalizations with very little to show for the effort. The surfactant field is complex, it is large, it is growing in volume, it is interesting technically, it has contributed substantially to increasing the standard of living of our country. There is still room for new products and new suppliers but this position must be earned. A newcomer could easily get lost in this jungle and dissipate his resources floundering about. Competition is so tough that there would be little mourning over his dead body.■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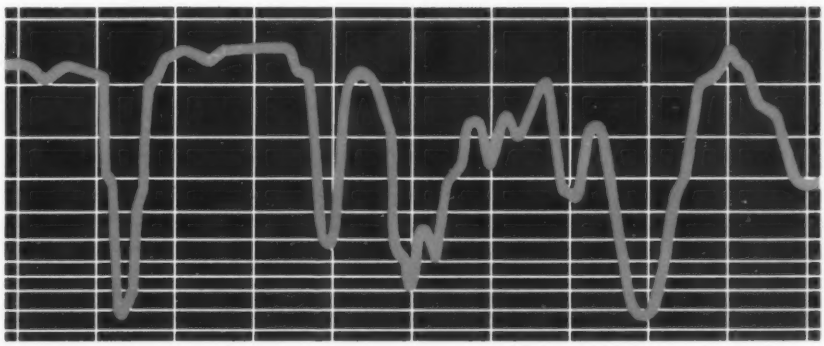
The Molecule's Fingerprint



In human identification a fingerprint is regarded as an infallible characteristic of the individual. In chemical analysis a substance is characterized just as unmistakably by its spectrum. The use of spectroscopy as a modern means of quality control serves as a check on manufacturing and thus guarantees uniform quality. Spectroscopy has in addition become an indispensable tool in our physico-chemical research laboratories for both research and development.

We have published a booklet entitled "Absorption Spectroscopy", and shall be pleased to place it at the disposal of interested parties upon request.

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Insecticides in powdered, granulated, flake, paste, and solid forms can be packaged advantageously in Clark metal containers. Clark has over 50 years' experience in metal packaging design and manufacture.

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When you need a functional, applicator-type package, specify a Clark metal container. Through its plastics division, Clark designs and manufactures plastic closures and applicators for metal/plastic combination containers.

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Clark lithographed metal containers project the image of quality—give fine products a distinct advantage in retail display. Brilliant lithography, registered with extreme precision, is a Clark trademark.

CHEMICAL FOOD ADDITIVES

Many food and drug chemicals, such as this popular Merck product, are marketed extensively in Clark metal containers. Brilliantly lithographed metal packages reflect superior product quality, give the appearance of sanitary freshness.

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When you need a protective outer package for a fragile container, metal is the best choice. This familiar Clark container serves as an attractive multicolor "advertisement" for Carter's until the contents are completely used.

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This popular Union Carbide product is packaged effectively in a convenient tube-type metal container with a sliding metal applicator base. Clark precision manufacture assures uniformity of construction, trouble-free filling.

DUST CLOTHS

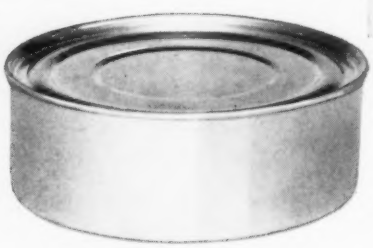
Polishing problems? Not when you use convenient, chemically treated dust cloths that are kept "like new" in handy Clark containers.

SADDLE SOAPS, WAXES AND POLISHES

Many chemical specialty products can dry and harden with exposure. They require the protection of snug-fitting, easy-opening metal boxes—containers that can't chip, crack, or break. An ideal container for products that are cloth-applied is this popular Clark design.

new from Clark

DRAWN ALUMINUM CANS



Two-piece drawn aluminum cans with compound-sealed ends are excellent containers for many food, drug, or chemical specialty products requiring hermetic sealing. These cans are lightweight, economical, and rustproof. They can be coated inside or out. They nest for compact storage . . . can be opened with any household or commercial can opener. These containers are available in 18 sizes. Write for complete information.

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A market for over 28 billion packages annually

Magnetized conveyor belt carrying aerosol cans down steep incline is inspected by H. F. Johnson (left), chairman, and Howard M. Packard, president of S. C. Johnson & Son, Inc., Racine, Wis. Magnetic device is part of "most modern and efficient" equipment in new pressure packaging center, just opened by S. C. Johnson at Waxdale, Wis. Other photos and details on plant appear in article beginning on page 129.

Your Anchor Man brings you SPECIALIZATION in glass packaging

Your Anchor Man knows glass packaging. He brings you all the benefits of Anchor Hocking's half-century of specialization in glass packaging. And he is supported in depth by experienced research, engineering, quality control and service technicians.

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But, if you market an aerosol, that's a different story. G. Barr & Company should do your manufacturing. We specialize in private label aerosols exclusively with acres of research, product development, formulation, packaging, storage and shipping facilities to serve you. Hundreds of millions of famous brand name products have been formulated and filled here. Our customers are leaders in their fields. We'd like to have your name with those we serve. May we tell you the complete G. Barr & Company story?

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Development of PVA

Water Soluble Packaging Film

Water soluble transparent packaging films of good flexibility and heat sealability may be cast from internally plasticized PVA resin

By David F. Lowry*,
Polyco Monomer Department
Borden Chemical Co.
New York

WHEN a product finally gets to the retail market place — to await the judgment of the consumer — it has gone through many marketing studies, research programs and away back — probably several years ago — it was just an idea. Probably it was targeted as a well planned research project, but it may be a byproduct of a research program aimed at some other product or end use.

Our topic — "The Development of a Polyvinyl Alcohol Type Resin for the Manufacture of Water Soluble Packaging Film — Why and How," sets the parameters for our discussion. Marketing and product packaging are outside its scope.

"Lemoflex" is a registered trade mark for Borden Chemical Company's modified polyvinyl alcohol resin powder from which successful water soluble packaging films are produced. I think we should first cover the "why" part of our subject. Just why did Borden work on this? Being a basic producer of polyvinyl alcohol, we were looking for a new area of growth for this very interesting resin. The areas of general use — textile sizing, adhesives, colloids for emulsion polymerization, and film for vacuum molding — were not growing at a sufficiently fast rate. We also foresaw a coming period of intense competition for these existing markets.

The decision to develop a product tailored exclusively to produce a water soluble packaging film is of great interest to those using or intending to use this product for packaging water soluble or water dispersible materials. All of this resin's properties were targets of a research program aimed at yielding a new dynamic marketing tool. I think all the other materials being offered are the result of their producers taking an expedient position of trying to adapt a product, developed as a thickener, protective colloid, emulsifier, gelling agent, etc. for this new exciting field. It just so happens that they are film formers.

History of Project

Polyvinyl alcohol has a history of being a good film former. In fact, the very demanding job of lining the vacuum molds for forming plastic shapes for the aircraft industry is entrusted to polyvinyl alcohol film because of its great strength. Therefore, why not modify this resin so that it has good flexibility and good solubility? It is true that film having excellent solubility had already been made from one of the conventional types of polyvinyl alcohol, but it had to be heavily loaded with plasticizer to give it good flexibility. This was an inherent weakness which made this film commercially unsuccessful, because the plasticizer migrated in a short time and the film lost its flexibility and became brittle.

The Borden project was clearly defined to take this excellent film-forming material — polyvinyl alcohol—preserve its strength, clarity, and heat sealibility, and then make it permanently flexible and completely and quickly water soluble over a range of temperatures. The modification was what research men call "internal plasticization." This means, the molecules are so modified in their structure that they have softness or flexibility built right into them. What does this modification mean in film performance? It means that we no longer have to be concerned about loss in flexibility as the film ages or is subject to varying ambient conditions during storage.

However, under extreme conditions, when very low temperatures and very low relative humidities — or conditions of dehydration—exist simultaneously, the film may crack under impact and/or flex conditions. Continuing research is well on the road to solving this problem and we expect commercial testing of the improved film to be completed in the immediate future.

Although the basic chemistry involved in internally plasticizing polyvinyl alcohol had been described in the literature, no successful economically sound process for commercialization of the reac-

*Paper presented at 47th annual meeting, Chemical Specialties Manufacturers Association, Hollywood, Fla., Dec. 6, 1960.

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tions had existed until the Borden process was developed.

As far as we know, the most satisfactory method for producing films from "Lemoflex" resin is by casting from a water solution. Therefore, Borden took the idea for producing water soluble packaging films to the two film producers who were regularly making film by hand casting — namely, Reynolds Metals Company and Mono-Sol Corporation. Mr. Vogel of Reynolds gives details of the film-making process in his contribution. (see *Soap and Chemical Specialties,* Feb. 1961, p. 131). We had visualized the packaging in water soluble film of detergents, bleaches, insecticides, dyestuffs, (both household and commercial) swimming pool chemicals, septic tank chemicals, toxic powders used in industry, and many things which are non-aqueous in nature but which must be dissolved or dispersed in water.

Desirable Film Properties

What are the film properties necessary for packaging? Since our object is solubility in water, we have to put solubility as the number one requirement. Right after this come the properties necessary in all packaging films in order to make a package using today's packaging machines, transportation, and merchandising methods.

A packaging film should have good strength—certainly over 1000 pounds per square inch — and our resin makes film of many times greater tensile strength. It must be heat sealable in a reasonable range of temperatures — somewhere between 250°F and 300°F— and our material makes such a heat sealable film. It must be flexible at a range of temperatures found in normal channels of commerce. Film cast from our resin meets these requirements except for the conditions of dehydration and extremely low temperatures to which I previously made reference.

Solubility requirements are only now being established, with our resin yielding the first commercially successful film setting the standards. Actually there are two properties of the film that make up solubility characteristics important to its commercial acceptance. The first is rupture or break time. This is the time required for water to enter and contact the contents of the package. In warm water with agitation this takes place rapidly, and in cold water without agitation, it would take longer. The second is complete solution time. This is when the last visible particle of film is completely dissolved. This varies from less than one minute in warm water up to less than three minutes at low water temperatures.

Film appearance is an important property, because we do not want to detract from the color of the package content unless we do it purposely by dyes or other added colorants. Our resin complies with this requirement because it yields a transparent, colorless film. Although we have had an occasional slight discoloration, we are on the way towards eliminating this problem entirely.

Returning once more to the question of heat sealability, film made from our resin is truly thermoplastic. We understand that some materials that have been tried cannot be heat sealed by themselves, but have to be coated by a water soluble heat sealable material.

One of the most notable properties of film from our modified PVA resin is its stability at all humidity levels at normal temperatures. For example, at very high relative humidities, the film has added flexibility but retains its integrity. Other products have been tried where the film actually dissolved at very high humidities (approximately 100%).

The film is completely insoluble in organic solvents. This characteristic might provide an interesting package for organic solvents that are to be emulsified or dissolved in water.

Since the film exhibits impermeability to gases and also to odors transmitted as gases, it will protect materials sensitive to gases, odors and the like. This property is a plus that the consumer gets in addition to solubility in water but it might be used as the main property needed in a particular packaging application. I can visualize a special gas barrier package using "Lemoflex" based film as the inner liner and a water insoluble outer barrier film to protect against water if necessary.

As our work progresses, we can visualize the development of packages having controlled solubility — maybe for hours, but surely for minutes. This could give many interesting uses where several chemicals (nonaqueous) could be put into a closed system at the start of a cycle and then, by selective solution rates of the packaging film, the chemicals would be added to the reaction in the desired sequence.

What about Food and Drug Administration status? Film made from "Lemoflex" resin has no status at this time. Based on our present knowledge, we feel it probably would not get approval for ingestion. We believe that the data we are acquiring will give us a product in the near future that should qualify for approval. We certainly have plenty of incentive because Borden Company could be one of the biggest users of a FDA approved film.■

—★—

O-I Names Gleason

John P. Gleason has been named manager of the Washington, D. C., office of Owens-Illinois Glass Co., Toledo, O., it was announced recently. He succeeds Walter G. Thomas who has retired after 33 years with the company.

Mr. Gleason joined Owen-Illinois in 1950, and from 1954 until early in 1960 was sales manager of an O-I subsidiary. During part of 1960 he served as assistant director for mobilization planning, containers and packaging division, Business & Defense Service Administration of the Department of Commerce.

Good Package Design* Stimulates Sales!

Amazing things can happen at the point of sale when your designers work with IMCO polyethylene containers. Freed from the restriction of conventional materials, they continually develop packages which overwhelm competition by the sheer magic of unusual form and color.

Thanks to advances in polyethylene chemistry, this new world of design is now available to nearly all packagers. IMCO containers are impermeable enough to hold most perfumed cosmetics, creams and household products. IMCO costs are directly competitive with glass and tin.

Surely this is the time to give your product the advantages of IMCO's knowledge and experience in the production of polyethylene containers. We can assist you in running tests of your products in IMCO containers, and we will be happy to quote prices on stock or custom-made bottles and jars. Call the sales office or plant nearest you or write direct to our Sales Manager in Kansas City. We'll have a man contact you within twenty-four hours.

*CLEAN AS A WHISTLE, PIG IN A POKE AND BOXING GLOVES BY AVON PRODUCTS, INC.

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packaging notes

Imco Shifts Kocher

Frederick L. Kocher, vice-president in charge of marketing for Imco Container Co., Kansas

Frederick L. Kocher

City, a division of Rexall Drug and Chemical Co., has been transferred from Kansas City to Chicago, where he will continue as vice-president in charge of the Chicago office as well as the firm's Canadian sales operation. Mr. Kocher was Chicago manager of sales for four years prior to being appointed vice-president in charge of marketing.

—★—

Anchor Hocking Changes

Anchor Hocking Glass Corp., Lancaster, O., has merged its California subsidiary, Maywood Glass Co., Los Angeles, into the parent company, it was announced recently by William V. Fisher, president.

Mr. Fisher also announced the organization of a new western division to manage Anchor Hocking's glass container and closure operations in the western states from the Rocky Mountains to the Pacific Coast. The division took over Maywood Glass Co.'s operations on Dec. 1, as well as those formerly carried out by Anchor Hocking's Pacific Coast closure division, with its plant at South Gate, Calif., and its new glass container manufacturing plant in San Leandro, Calif.

—★—

Plastic Bottles to Double

William O. Bracken, sales development specialist for Hercules Powder Co., Wilmington, Del., predicted "the sale of plastics used for blow-molded bottles may double during 1961," at the 17th annual technical conference of the Society of Plastics Engineers, Inc., held in Washington, D. C. recently.

Plans to package household starches and bleaching liquids in rigid, unbreakable bottles, accounted for his belief that high-density polyethylene and polypropylene will experience continuing market success, Mr. Bracken stated. Another factor indicating an expanding market he said, is a mechanical development enabling the manufacture of multicolor blown shapes in these plastics.

Mr. Bracken, a former national president of SPE said "the new plastics, although available for only two years, are now being used to package 80 per cent of the household detergents sold in America." Plans are under way to manufacture polypropylene storage tanks and process vats with 250-gallon capacities.

—★—

"Delrin" Price Cut

E. I. du Pont de Nemours & Co., Wilmington, Del., announced recently it had reduced the price of "Delrin" acetal resin, on March 7, from 80 to 65 cents a pound. The plastic was introduced in January, 1960. Initial price of "Delrin" was 95 cents a pound. Reductions of seven and eight cents per pound, respectively, were made on Feb. 1, and June 1, 1960. Aerosol containers are among the products now being formed in "Delrin".

Wheaton on Canco Board

Frank H. Wheaton, Jr., has been elected a director of American Can Co., New York, it was

Frank H. Wheaton, Jr.

announced recently. Mr. Wheaton is president of the Wheaton Glass Co., Millville, N. J., and of American-Wheaton Glass Co., also Millville, a joint venture in which American holds a majority interest.

—★—

AMA Packaging Exposition

American Management Association's 30th National Packaging Exposition will be held April 10-13, at the Exposition Center, Chicago. Over 350 exhibits of packaging materials, supplies, containers, machinery, and services will be on display. Running concurrently with the exposition will be the AMA's 30th National Packaging Conference, April 10-12, theme of which will be "The Power of Packaging."

—★—

Brockway Names Bowman

DeForest Bowman has been appointed district sales manager in Omaha, Nebr., for Brockway Glass Co., Brockway, Pa., it was announced recently by A. G. Beltz, general sales manager. Mr. Bowman, with the firm since 1955, was formerly southwest regional sales manager in Dallas.

HOW MUCH DOES A CONSUMER COMPLAINT COST?

A LITTLE CARE IN THE CHOICE OF YOUR SUPPLIER WILL GO FAR IN CUTTING COMPLAINTS AND REJECTS.

That's why Precision Valve Corporation takes a lot of care in processing their valves . . . quality controls at every step of the way reduce the chances of rejects to a minimum, and continuing research reduces the minimum.

Take care... take Precision Valves for your aerosol products.

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What's New?

"Steri-Spray" instant antiseptic, said to be a complete first aid kit in an aerosol can, is now being marketed on a national scale by Mennen Co., Morristown, N. J. Packaged in a 4½ ounce container from Crown Cork & Seal Co., Philadelphia, and equipped with a valve by Oil Equipment Laboratories, Inc., Newark, N. J., "Steri-Spray" is recommended for use on cuts, sunburn, poison ivy and oak, insect bites and minor burns. Claimed to relieve pain and fight infection, retail price of "Steri-Spray" is $1.69 per can.

Colgate-Palmolive Co., New York, recently announced the national distribution of "Coleo," an antibacterial deodorant soap. Containing a new bacteriostat called TCSA, "Coleo" is said to provide antibacterial deodorant cleansing action in a high-quality toilet soap. It is claimed to reduce skin bacteria, combat offensive odors, and be mild and gentle. Colgate developed "Coleo" after a long series of studies including laboratory and field tests during which over 20,000 bars were distributed in 15 hospitals under technical supervision. It has a lemon color and comes unwrapped in three sizes, one, 1½ and three ounce cakes. "Coleo" is claimed to lather freely and easily in hard or soft, hot or cold water. TCSA is a product of Geigy Industrial Chemicals Division of Geigy Chemical Corp., Ardsley, N. Y.

"Perma-Chem," a new household spray antiseptic was recently introduced by the Permachem Home Products Corp., New York. Claimed to stop mildew, mold, rot, decay and odors by killing the bacteria and fungi that produce them, "Perma-Chem" is said to be effective for weeks after application. Equipped with a sprayer cap, "Perma-Chem" is packaged in a 16 ounce, unbreakable, polyethylene bottle, supplied by the Imco Container Co., a division of the Rexall Drug and Chemical Co., Los Angeles.

"Seven Winds" cologne mist, recently introduced by DuBarry, a division of Richard Hudnut Corp., Morris Plains, N. J., is packaged in a new swirl glass bottle, supplied by Maryland Glass Co., Baltimore. The two ounce aerosol package utilizes a mechanical break-up valve produced by Risdon Manufacturing Co., Naugatuck, Conn., and is filled by Fluid Chemical Co., Newark, N. J. Retail price: $2.75, plus tax.

Allen B. Wrisley Co., Chicago, has added "Complexion Treatment Soaps" to its cosmetic line. Developed for dry, sensitive and oily skin, the formula contains lecithin as well as other special ingredients claimed to combat each particular complexion problem. Individual boxes containing three cakes of soap retail for $1.50.

"Banish Dandruff Treatment Shampoo," in cream form, is now being offered by John H. Breck, Inc., Springfield, Mass. Available in two ounce (right) and four ounce polyethylene tubes produced by Bradley-Sun division of American Can Co., New York, product is said to contain compound 22T4, anti-dandruff ingredient. Both sizes of "Banish Cream" are contained in an open-faced, gold foil carton by Sample-Durick Co., Holyoke, Mass.

Houbigant, Inc., New York, is offering its "Eau de Toilette Spray Mist" in a new 1½ ounce pastel bottle, in time for Mother's Day. Spray mist, available in "Chantilly," "Quelques Fleurs" and "Flatterie," retails for $2.50, plus tax.

"6-12" Insect Repellent, manufactured by Union Carbide Consumer Products Co., division of Union Carbide Corp., New York, now comes in a new 14 ounce family size (shown here) and a five ounce personal size. Product is packaged in a container from Continental Can Co., New York, equipped with a Precision valve and a Sterling Seal Co., Erie, Pa., cap.

Allen B. Wrisley Co., Chicago, is offering "Four Seasons" hand and body lotion in three sizes: 12 ounces—$1.00, eight ounces —69 cents, and four ounces—39 cents. Product is said to contain lanolin for softening and silicone for protection. Packaged in unbreakable plastic bottles, the two larger sizes are equipped with flip top dispensers. A self display unit, capable of holding 18 bottles in varying sizes, is being offered, free.

"Love Lace" cologne mist, is now being offered by John H. Breck, Inc., Springfield, Mass., in a new ¾ ounce purse size aerosol package. Peerless Tube Co., Bloomfield, N. J., supplies the barrels for the container; V.C.A., Inc., Bridgeport, Conn., makes valve and cap, and Aerosol Techniques, Inc., Bridgeport, is the filler. Retail price is $1.50, plus tax.

Textile Adjuncts Corp., Brooklyn, has just introduced a new permanent type water repellent, "Water-Skipper Emulsion," for washing machines. The product reportedly gives practical, easy and economical water proofing of all types of fabrics and garments. "Water-Skipper Emulsion" is packaged in 16 ounce glass bottles or in bulk for institutional use.

A new jumbo size "Shaving Foam" has just been introduced by Yardley of London, Inc., New York. A promotion feature, the special 11 ounce "Shaving Foam," in limited supply, retails for $1.25; is said to offer 80 per cent more shaves than the 6 ounce container. The jumbo edition features a new black stack cap. Yardley is offering retailers a counter display holding eight units of the special size, shipped 12 units to a carton.

BROCKWAY VISION IN GLASS

Shelf satisfaction yields buyer acceptance • Whether it's the golden yellow of your egg shampoo or the rich ruby redness of your cough syrup, it will catch the eye of the buyer faster in crystal-clean glass by Brockway. Only glass containers give buyers eye-stimulation to trigger purchase desires. To move your product off the shelf, court buyer acceptance with glass containers —quality proved glass containers through BROCKWAY VISION IN GLASS.

SYMBOL OF QUALITY · GLASS CONTAINERS ·

BROCKWAY GLASS

COMPANY, INC., Brockway, Pennsylvania

Sales Offices in Principal Cities

SUBSIDIARIES: Demuth Glass Works, Inc., Parkersburg, W. VA.
Tygart Valley Glass Co., Washington, Pa.
Celluplastics Inc., Newark, N. J.

Brockway, first name in containers for:

foods
pharmaceuticals and proprietaries
prescription ware
beverages
beer
liquors
plastic containers
vials and tubing

Integrity in glass since 1907

Packaging Forum Set

The 23rd annual National Packaging Forum, sponsored by the Packaging Institute, will be held Oct. 18-20, at the Biltmore Hotel, New York City.

—★—

New Packaging Medium

A new thermoplastic vinylidene resin has just become available in semi-commercial quantities from Pennsalt Chemicals Corp., Philadelphia. Ease of fabrication, mechanical strength and toughness, resistance to extreme temperatures, corrosion, flame, extreme weather conditions and ultraviolet radiation are claimed for the new resin.

"Kynar" RC-2525 is suggested for sealed pouches to hold aerosol propellants, lubricants and other chemical specialties. Other potential packaging applications include drum and container linings and sterilizable packages for pharmaceuticals and other microbiologically critical products.

The resin's chemical resistance and mechanical properties suggest a wide range of uses in chemical processing equipment.

Pennsalt's new vinylidene fluoride resin, first of a projected series, is currently available as molding powder and in pelletized form. Chemically, "Kynar" is a crystalline, high molecular weight polymer of vinylidene fluoride $(CH_2\text{-}CF_2)\,n$, containing over 59 per cent fluorine by weight.

A 16 page technical bulletin, price schedules, samples and technical service are available to those interested in the new Pennsalt product.

—★—

New CCA Plant

Container Corporation of Ameria, Chicago, recently announced the establishment of a corrugated paperboard manufacturing plant in Houston, Tex. The one story plant, scheduled to begin operations May 1, is to be equipped with a printer slotter, die cutting, taping, gluing and stitching equipment, and will produce a complete line of corrugated packaging products. Administration of the plant will be under the direction of the company's Fort Worth personnel.

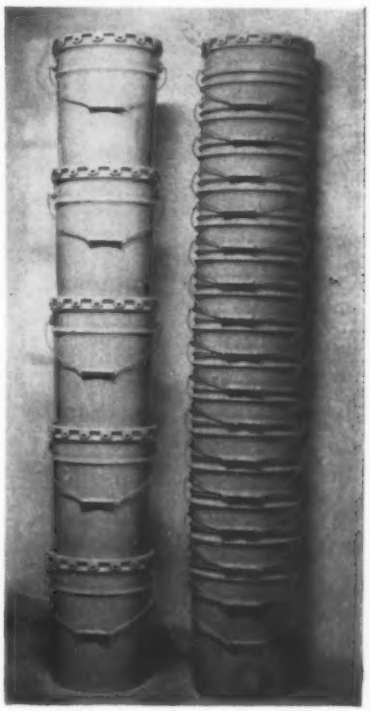
—★—

New Steel Nesting Pail

A new five-gallon tapered nesting pail is now being produced by Bennett Industries, Inc., Peotone, Ill. Bennett nesting pails, available in 28, 26 or 25 gauge, are said to comply with all specifications in the gauges covered by ICC-37A, Universal Freight Classification Rule 40, and National Motor Freight Classification Rule 5.

It is claimed that three times as many leakproof steel pails can be stored and shipped in the same space as straight-sided pails. A built-in depressed panel on the cover locks stacked filled pails. A 16-lug cover or ring seal cover is used. The same closing tool can be used as is now employed on straight-sided pails. Side seams are electrically welded. Ears are projection welded at eight points for stronger construction.

Three times as many new 5-gallon tapered nesting pails by Bennett Industries, Inc., Peotone, Ill., can be shipped and stored in the same space as straight-sided pails.



In Aerosol Valves . . .

WHAT'S THE MOST VITAL ELEMENT OF SUCCESS?

Spray head, delivery tube, valve body or housing, gasket, ferrule, spring . . . all play a role in the success of an aerosol valve. How they are individually made, and how they are put together as a unit determine their effectiveness. This is where the most vital element of all is brought into play.

Know-how. It's more than a material part. It's experience, craftsmanship and pride in manufacturing the best aerosol valve. An axiom of quality is the greater the know-how, the better the product. When you buy Newman-Green aerosol valves, you're buying the most vital element of all . . . know-how. Try us soon.

NEWMAN-GREEN *Creative Aerosol Valve Engineering*

151 Interstate Road Addison, Illinois Kingswood 3-6500

new trade marks

THE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12 (a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of $25 must accompany each notice of opposition.

Sta-Pine — This for disinfectant-deodorant. Filed Feb. 5, 1960 by Sta-Pine Products, Inc., Shreveport, La. Claims use since Nov. 1, 1958.

Pax Action — This for crab grass killer. Filed Mar. 18, 1960 by Utah Cooperative Association doing business as Pax Co., Salt Lake City, U. Claims use since Dec. 7, 1959.

Pax Punch — This for insecticide. Filed Mar. 18, 1960 by Utah Cooperative Association doing business as Pax Co., Salt Lake City, U. Claims use since Dec. 7, 1959.

Abl—This for household detergents. Filed July 31, 1959 by Paxton Wholesale Grocery Co., Danville, Ill. Claims use since July 15, 1959.

Jetsol — This for cleaner for use as a step in a paint removing process. Filed June 30, 1960 by Savogran Co., Norwood, Mass. Claims use since June 2, 1960.

Tik-et—This for general cleaner in a granular chemical form, for use in cleaning machinery and utensils in the dairy, food and beverage industries. Filed May 9, 1960 by Diversey Corp., Chicago. Claims use since Jan. 4, 1960.

Diton—This for general cleaner in a granular chlorinated form, with incidental water-softening properties, for cleaning utensils and equipment used for food processing and dairy farm producing purposes. Filed May 9, 1960 by Diversey Corp., Chicago. Claims use since Jan. 4, 1960.

IRSA— This for toilet soaps and shampoos. Filed Sept. 1, 1959 by Georg Dralle, Hamburg-Altona, Germany. Owns German registration dated Jan. 30, 1959.

Sulfrin—This for toilet soaps and shampoos. Filed Sept. 1, 1959 by Georg Dralle, Hamburg-Altona, Germany. Owns German registration dated Feb. 10, 1958.

Glitter—This for liquid composition containing soap and a detergent for cleaning jewelry and eye glasses. Filed May 18, 1959 by Glitter, Inc., Chicago. Claims use since May 6, 1959.

Easiest—This for copper cleaner. Filed July 5, 1960 by E-Z-Est Products Co., Oakland, Calif. Claims use since Aug. 6, 1958.

Dawson—This for insecticides and fumigants. Filed March 9, 1960 by Ferguson Fumigants, Inc., Hazlewood, Mo. Claims use since May 10, 1955.

Alnate—This for cleaning composition especially useful in food and drink manufacturing and processing plants. Filed Feb. 1, 1960 by Wyandotte Chemicals Corp., Wyandotte, Mich. Claims use since July 28, 1959.

Lestoil Wash'n Bleach — This for combination of dry bleach and dry detergent for laundering. Filed April 25, 1960 by Adell Chemical Co., Holyoke, Mas. Claims use since April 18, 1960.

Silver Plus — This for silver plating and polishing solutions. Filed March 8, 1960 by Empire-La Vive Corp., Tuckahoe, N.Y. Claims use since June 20, 1956.

Diaper Soak—This for concentrate to be diluted with water for deodorizing and sanitizing infants' diapers, bedding and clothing, by soaking. Filed Sept. 28, 1959 by John F. Coogan, Coral Gables, Fla. Claims use since Aug. 21, 1959.

Babbitt — This for household cleaners, oven cleaner spray, and copper and stainless steel cleaner. Filed July 13, 1959 by B. T. Babbitt, Inc., New York. Claims use since March 3, 1959.

Foam-Out—This for stain remover. Filed Jan. 25, 1960 by Whitmire Research Laboratories, Inc., St. Louis. Claims use since Dec. 29, 1959.

Opalite — This for oil-soluble detergent for dry cleaning operations. Filed March 8, 1960 by Stamford Chemical Co., Stamford, Conn. Claims use since Sept. 29, 1959.

Chloreal — This for chlorine bleach and disinfectant incorporated as ingredients in a detergent. Filed May 18, 1960 by B. T. Babbitt, Inc., New York. Claims use since Feb. 16, 1959.

Spring Day—This for general purpose cleaner for all washable surfaces. Filed May 31, 1960 by Columbia Wax Co., Glendale, Calif. Claims use since May 13, 1960.

Victamide—This for water softening compositions, flameproofing agents, dispersing agents, and detergent builders. Filed July 16, 1959 by Victor Chemical Works, Chicago. Claims use since July 1948.

Hep—This for oven cleaner spray. Filed July 8, 1960 by B.T. Babbitt, Inc., New York. Claims use since March 1955.

Synthene—This for liquid detergent general purpose cleaner. Filed Aug. 2, 1960 by Western Chemical Co., St. Joseph, Mo. Claims use since Aug. 15, 1957.

Bowl-Bath—This for cleaning compositions for toilets. Filed March 28, 1960 by American-Marietta Co., Chicago. Claims use since Feb. 17, 1960.

Rinsit—This for paint brush and roller cleanser. Filed July 19, 1960 by Patterson-Sargeant Co., Cleveland. Claims use since June 7, 1960.

Trilby—This for soap. Filed July 29, 1960 by Purex Corp., Ltd., South Gate, Calif. Claims use since Aug. 1, 1956.

Sentol—This for industrial-type liquid detergent for cleaning dairy equipment. Filed July 29, 1960 by Wyandotte Chemicals Corp., Wyandotte, Mich. Claims use since Jan. 27, 1958.

Brawn—This for protective floor dressing and polishing material. Filed Feb. 11, 1960 by Pierce & Stevens Chemical Corp., Buffalo, N. Y. Claims use since Jan. 21, 1959.

Staco — This for algaecide, laundry bluing, disinfectant, and insecticide. Filed June 29, 1959 by State Chemical Co., Amarillo, Tex. Claims use since May 1, 1944.

Thio-Kil—Ths for active chemical ingredient incorporated in a combination insecticide, fungicide, and miticide product. Filed Dec. 14, 1959 by Shulton, Inc., Clifton, N. J. Claims use since Oct. 15, 1959.

KCG—This for turf fungicide. Filed March 18, 1960 by Upjohn Co., Kalamazoo, Mich. Claims use since Feb. 18, 1960.

Sok—This for crabgrass herbicide. Filed March 24, 1960 by Upjohn Co., Kalamazoo, Mich. Claims use since Feb. 18, 1960.

King Bleachies—This for chlorine bleach in tablet firm. Filed June 7, 1960 by Mangels-Herold Co., Baltimore. Claims use since May 23, 1960.

Commando—This for insect repellent. Filed July 8, 1960 by M.F.A. Oil Co., Columbia, Mo. Claims use since June 15, 1960.

Erase—This for herbicide. Filed July 15, 1960 by O. M. Scott & Sons Co., Marysville, O. Claims use since July 8, 1960.

Nu Coat—This for polish for automobiles, refrigerators, silverware, furniture, tile, porcelain, linoleum and chrome. Filed June 16, 1959 by E-Z Coat, Inc., Clearwater, Fla. Claims use since Nov. 2, 1957.

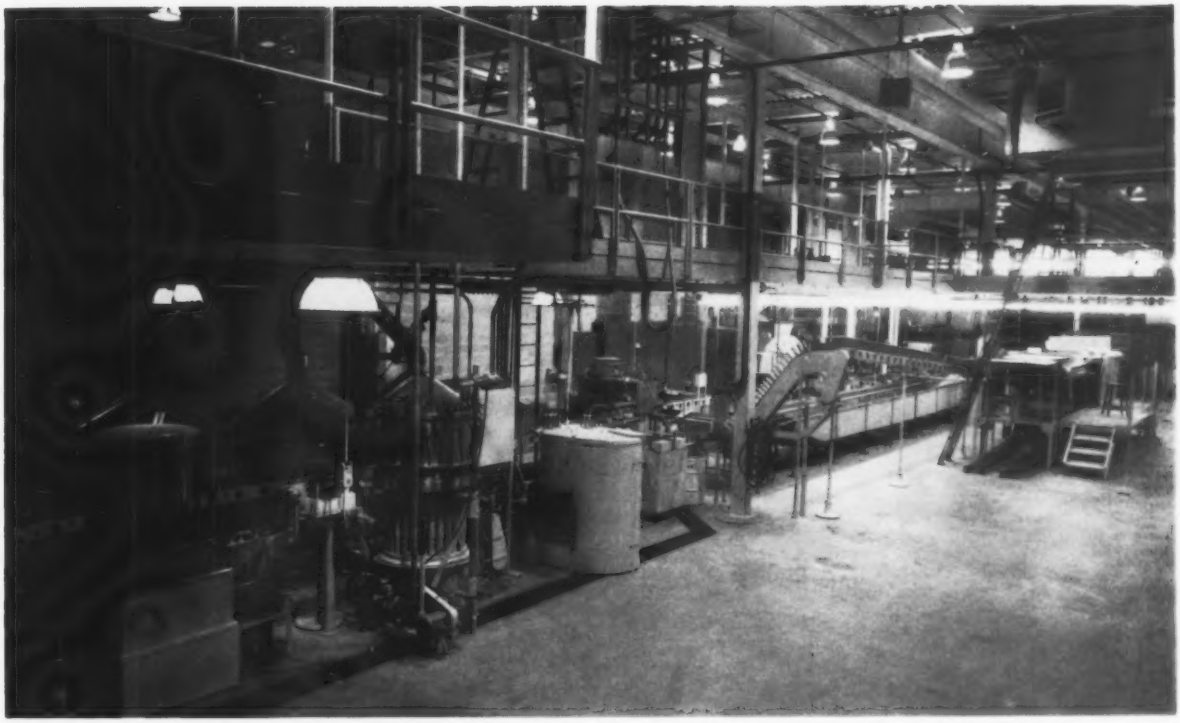
Sprayex—This for shoe polish. Filed Aug. 3, 1960 by Podiatry Laboratories, New York. Claims use since June 3, 1959.

Task-Designed Crown aerosol cans contain the help for many a minor cut, scratch and scrape! And a whole new market arrived, thanks to aerosol cans that have been specially Task-Designed by Crown to package a wide variety of products. Aerosol-packed spray bandage is just one of hundreds of new products that gain consumer interest from Crown's pioneering, skill, wide experience and Task-Designing in this new field. May we have the opportunity to provide you with more details?

CROWN

for cans · crowns · closures · machinery

CROWN CORK & SEAL CO., INC., 9300 Ashton Rd., Philadelphia 36, Pa.



Overall view of first filling line to be installed at new pressure packaging center just opened at Waxdale, Wis., by S. C. Johnson & Son, Inc., Racine. Three of Johnson's aerosol products will be filled on this line.

Johnson's New Aerosol Plant

S. C. JOHNSON & Son, Inc., Racine, Wis., recently opened a 42,000 square foot pressure packaging installation at Waxdale, Wis. Built at a reported cost of $1 million, overall dimensions of the plant are 125 feet by 360 feet, with a first floor area of 37,750 square feet, and a second floor area of 4,740 square feet.

Of the apportioned areas, receiving and container storage is the largest, accounting for 20,000 square feet; packaging — 9,500 square feet; raw material storage and processing — 6,000 square feet; personnel services, offices, and laboratory — 4,700 square feet; and building services — 2,300 square feet.

Products are manufactured in three 1500 gallon stainless steel vessels mounted on scales. Ingredients are weighed into the mix to insure greater accuracy. Following processing, the material is pumped into one of seven 2200 gallon stainless steel storage tanks, where samples are taken for quality control analysis and approval prior to filling. Four 12,000 gallon outside storage tanks are used to store fluorinated propellants and one 18,000 gallon tank for a hydrocarbon propellant. In addition, volatile solvents are stored in five outside tanks with a total volume of 66,000 gallons. (four 12,000 gallon and one 18,000 gallon). All finished goods are shipped from the company's adjacent Waxdale shipping center. Receiving facilities can handle three trucks (with provisions for the addition of a fourth) and two railroad cars.

Presently equipped with one filling line, the new plant is said to be capable of turning out more than 70,000 pressurized containers in an eight hour shift. Integral components of the line are a 27-valve rotary filler for active ingredients, a rotary vacuum crimper and pressure filler, both with 15 stations. Other line components include a valve assembler which attaches reeled dip tubing to the valve bodies, a 12-station rotary inserter, and a de-palletizing component, which sweeps off a layer of cans at a time from bulk load units. All units, except for the de-palletizer, are said to be explosion-proof and key areas of the building are "Cardox" protected. The plant is presently producing Johnson's "Pledge" furniture polish, "Glade" air refreshener and "Off!" insect repellent. A second line, to be installed soon, is earmarked for "Raid" insecticide products.

Explaining his company's decision to construct its own pres-

You have a working partner in aerosols **at General Chemical**

How General Chemical experts can help contract fillers develop marketing and promotion plans

Are your advertising and promotion programs doing the best possible job in gaining new business for you? If you would like expert advice in this area, just call on General Chemical. General's specialists in marketing, advertising and sales promotion will be glad to review your present program and suggest ways in which it might possibly be improved. This service is free, to help support the growth of your contract filling business.

In addition General Chemical offers these comprehensive services to help strengthen your position as an aerosol specialist:

Formulating aid–General Chemical's fully equipped laboratory and staff of experts back up your formulating work for customers.

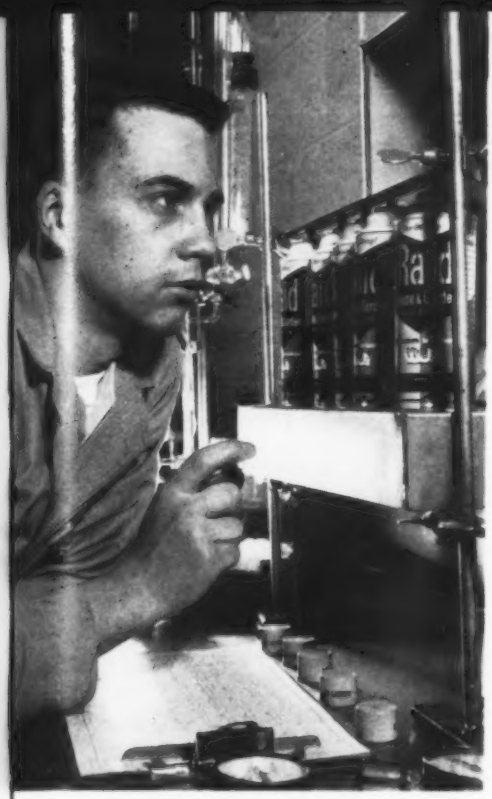
Sales presentations–General Chemical can help you gain new business by assisting with your sales presentations to prospective aerosol marketers.

Product information bulletins – General Chemical provides a basic library of technical information on existing aerosols and new products developed in General's laboratory.

These helpful services are available free to contract fillers from General Chemical . . . producer of Genetron® aerosol propellants. General provides standard propellants and special blends for virtually every type of aerosol product. For full information about General's services to contract fillers, phone or write the General Chemical office nearest you.

genetron®
aerosol propellants
Putting the "push" in America's finest aerosols

Allied Chemical
GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N. Y.



Technician at new Waxdale, Wis., pressure packaging center of S. C. Johnson & Son, Inc., Racine, times propulsion period for an aerosol insecticide. Aiding test is device that keeps five cans of insecticide spraying simultaneously into chamber.

sure packaging plant, R. P. Gardiner Johnson's manufacturing vice-president stated: "We feel we can produce products at lower cost; have closer control over production scheduling; and have more exacting quality control over our pressurized products.

In all, S. C. Johnson's manufactures 12 aerosol pressure packaged products. Those not filled at Waxdale will continue to be filled by contract packaging firms.

—★—

New Spray Representative

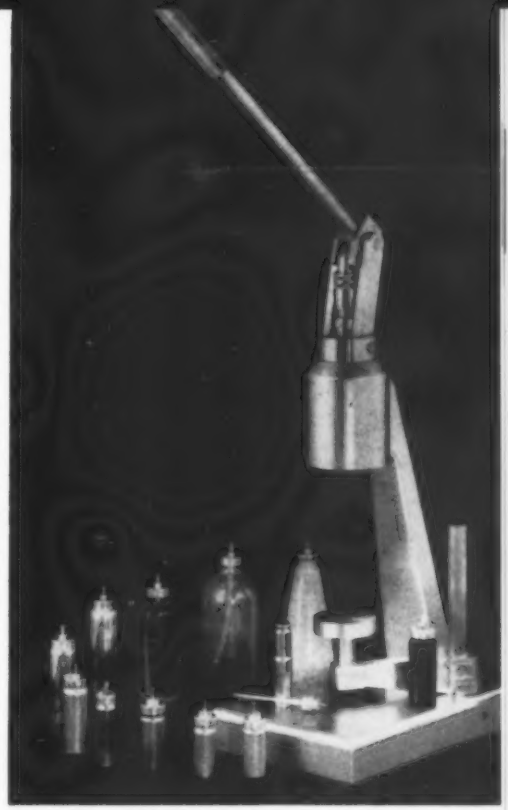
Spray Products Corp., Camden, N. J., recently announced the appointment of J. Paul Saunders Co., Bowling Green, Ky., as their representative for the states of Kentucky, Tennessee, Mississippi and Alabama.

In January 1956, Spray Products Corp., introduced "Spray Starting Fluid" in a pressurized can, capable of spraying down to 65 degrees below zero. Since that time the company has added "Spray Nuts Off," "Diesel Pep" and several other items to their spray line.

—★—

New Pressure Pak Crimper

Pressure Pak, Inc., West Palm Beach, Fla., recently introduced its Model 2000-B aerosol bottle and vial crimper. The unit is said to be capable of crimping aerosol bottles and tubes varying in size and style from 13 mm to 20 mm. The unit does not utilize collets for crimping or spinners for sealing the valves in place. The closing mechanism is operated by 18 finger-like projectiles called "crimpettes." One set of "crimpettes" covers the range of 13 mm to 15 mm tubes; two other sets are available covering the range of 17 mm to 18 mm and 19 mm to 20 mm tubes, vials and bottles. The unit is said to be capable of crimping all existing aerosol pressurized containers below one inch size, in glass, stainless steel, aluminum, plastic coated glass, nylon or "Delrin." The change-over from one size of "crimpettes" to another is claimed to require less than two minutes. A chart is supplied with each crimper designating the calibrated settings required for each valve and container combination. To establish a correct crimp with a given container, the plunger stroke adjustment which governs the crimping diameter and the valve depth adjustment which regulates the height of the crimp, are said to be the only two adjustments required.



Model 2000-B aerosol bottle and vial crimper recently introduced by Pressure Pak, Inc., West Palm Beach, Fla. Unit is said to be capable of crimping containers in varying styles and sizes from 13 to 20 mm.

FDA Accepts "Zytel"

The Food and Drug Administration has ruled as safe for food handling and processing applications, E. I. du Pont de Nemours & Co.'s (Wilmington, Del.), "Zytel" nylon resins. The principal applications of "Zytel" to date have been in food and soft drink dispensing apparatus. Being heat sterilizable and possessing a low coefficient of friction, it is expected to have considerable impact in the dairy equipment field.

Aerial view of new Johnson pressure packaging center, left, and company's shipping center (right) at Waxdale, Wis. The two buildings occupy 11 of 25 acres owned by Johnson for possible future expansion. Waxdale is about six miles from Racine.

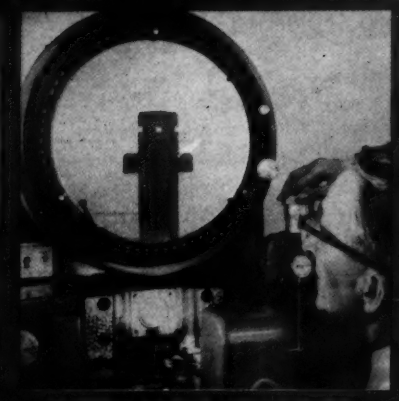
the UNSEEN ADVANTAGE of

RISDON Aerosol Valves

Protected Quality Performance

Strict, scientific, uncompromising quality control insures Risdon valve performance when your customer presses the actuator. This is the unseen advantage, the *extra* value you get from Risdon. It results in consistent, customer-pleasing performance that wins repeat sales.

At left, inspector uses hydraulic tester to simulate pressure conditions of filling. Technician on right uses special, custom made gauge to check the orifice in an actuator.



A contour projector accurate to one-half thousandth of an inch enlarges silhouette of valve components up to 50 times for precise checking of dimensions and contour.

In the quality control test on the left, actuators are being examined under a microscope. On the right, orifices of "Micro-Mist" actuators are being checked with a pin gauge.

Write for specific information on the valve for your aerosol product as used by Risdon's free booklet covering.

THE RISDON VALVE LINE
includes

- **the GB Valve**—for glass, plastic & small metal containers with 20 MM opening
- **the 5210 Valve**—for standard 1" opening metal containers
- **the Metered Spray Valve**—for pre-measured sprays
- **the "Magna-Meter"® Valve**—for larger pre-measured dispensing of sprays, liquids or foams; for liquefied propellants and NITROGEN
- **the "Micro-Mist"® Valve**—for dispensing 3-Phase products or super spray performance on 2-phase products, liquefied propellants and NITROGEN

ALL RISDON VALVES ARE COVERED BY PATENTS OR PATENTS PENDING.

RISDON

THE RISDON MANUFACTURING CO.
AEROSOL DIVISION
NAUGATUCK, CONNECTICUT

RI-128

pressure packaging

In Virginia Smelting Post

Neal Kincannon recently was named southwestern district representative for the aerosol sales department of Virginia Smelting Co., West Norfolk, Va. Prior to joining Virginia's sales staff, Mr. Kincannon was with the New York Life Insurance Co.

Neal Kincannon

—★—

New British Aerosol Assoc.

The newly formed British Aerosol Manufacturers' Association is now affiliated with the Association of British Chemical Manufacturers, it was announced recently. Headquarters for the new body are at Cecil Chambers, 86, Strand, London, W.C. 2. W. A. Williams is secretary.

—★—

New Shulton Division

Shulton, Inc., Clifton, N.J., announced recently the formation of a home products division, headed by William H. O'Brien, vice-president. The new division was formerly the consumer chemical section of the fine chemicals division. The new division will service drug stores, supermarkets, hardware and variety stores with the company's "Bridgeport" aerosol line of household and garden insecticides, and air freshener, "Good-Aire", as well as certain proprietary products.

Two new appointments for the home products division have been made: "William Wood has been named eastern regional sales manager; Lee L. Fallenstein Jr., western regional sales manager. Mr. Wood joined Shulton in 1959 as sales supervisor for the fine chemicals division—consumer sales. Prior to that he was associated with Monsanto Chemical Co., St. Louis. Mr. Fallenstein joined the company in 1959 as a sales representative in the Dallas area. Before that he had been associated with Revlon, Inc., and Hazel Bishop, Inc., both in New York.

—★—

Barr Brochure

G. Barr & Co., Chicago, a leading private label producer of aerosols, has made available an eight page brochure outlining the company's services in production, formulation, quality control and counseling. The booklet is a thorough introduction to the company which entered the aerosol field in 1949.

—★—

Scovill International Div.

The Schrader-Scovill international division has been established to coordinate all activities of Scovill Manufacturing Co. (Brooklyn), outside the United States, it was announced recently. Schrader-Scovill International has assumed direction of existing Scovill overseas branches and subsidiaries. The A. Schrader's Son division, previously operated these faciliites in England, Canada, France, Brazil and Australia.

Building on the base established by Schrader, the international division is responsible for the manufacture and marketing of all Scovill division products throughout the world. Scovill's eight operating divisions, in addition to Schrader, produce aerosol valves, compacts and other containers for the cosmetic industry.

Acrolite Appoints Elkin

William Elkin has been appointed vice-president in charge of sales, Acrolite Products Inc., Rahway, N. J., it was announced recently. Mr. Elkin, was formerly associated with Anchor Chemical Corp., Brooklyn, N. Y.

William Elkin

Mr. Elkin's appointment is in line with a broad new expansion program being undertaken by the firm, to create closer cooperation between dealers, the company and the consumers, throughout the country.

—★—

Streff in New Post

John D. Streff has been named mid-west zone sales manager of Plasti-Kote, Inc., Cleveland, it was announced recently by Elias Shapiro, executive vice-president.

Mr. Streff, formerly a district sales manager with Maremont and Accurate, Chicago (automotive aftermarket suppliers) for nine years, succeeds Harold Luce who was recently promoted to general sales manager for Plasti-Kote.

Precision Appoints Perry

Albert R. Perry Jr., former corporate secretary and member of the board of Airkem, Inc., New

Albert R. Perry, Jr.

York, was recently appointed director of international operations for Precision Valve Corp., Yonkers, N. Y. Mr. Perry has charge of Precision's 10 manufacturing facilities outside the United States.

—★—

A T I Issues Stock

Aerosol Techniques, Inc., Bridgeport, Conn., has issued 125,000 shares, at $4. a share, of publicly traded stock. Proceeds will be used to bolster working capital and retire its debts. ATI will be the first company operating solely as an aerosol filler to offer stock to the public.

One firm that might dispute the company's claim to "first" is Old Empire, Inc., Newark, N. J., It "went public" in January 1960, offering 240,000 shares of stock at $1.25 a share. Although it does a large part of its business in aerosol packaging, it also fills other types of products.

ATI, founded in 1955 by H. R. Shepherd has packaged cosmetic products almost exclusively, and as recently as last year, cosmetics and similar products accounted for approximately 75 per cent of its total sales. It also packages pharmaceuticals and household products. Its sales amounted to almost seven million dollars in the year ended Sept. 30, 1960, as compared with $1,500,000 in 1956.

In addition to loading aerosols, ATI has research laboratories for developing new formulations. Leased plant facilities include 33,000 square feet of laboratories, offices and manufacturing space, and 12,415 square feet of warehousing. Round the clock production of its four filling lines is estimated at 85 million units a year.

—★—

Risdon Book Marks 50 Yrs.

"Connecticut Enterprise" is the title of a 104 page illustrated hard cover book published by Risdon Manufacturing Co., Naugatuck, Conn., to mark the firm's 50th anniversary.

A major manufacturer of aerosol valves and refillable dispensers, Risdon grew out of a community enterprise: In 1910, 114 Connecticut citizens joined together in the purchase an almost bankrupt tool works. Their purpose was to bring a new industry to the area and to ensure year round employment. The joint ventuure began to pay dividends in 1917 and has done so without interruption up to the present.

The book tells the Risdon story mainly in pictures. The firm made its first aerosol valve in 1949, has since developed a number of break up and metering valves for special applications. Three years of research went into the development of the first Risdon valve, the book relates.

Risdon grew through acquisition and through internal development. Having become a valve manufacturer in 1949 after several years of making metal components for other firms, it established a full scale plastic division last summer.

—★—

New CCC Aerosol Overcap

Continental Can Co., New York, recently announced a nibbed-dome top for aerosol cans, designed to accommodate a single shell metal overcap. The new overcap, in 202 and 211 diameter sizes, is said to serve as effectively as the present double shell overcap, and to be less expensive.

Fluid Names Locantore

Rocco L. Locantore has been appointed to the newly created position of sales manager of

Rocco L. Locantore

Fluid Chemical Co., Newark, N. J., it was announced recently. He joined the firm in 1956 and has held positions successively as supervisor, shift superintendent, and director of quality control. He was formerly with Christy Chemical Corp., Worchester, Mass., for six years.

The new dome-top of the aerosol can is impressed with four dimple nibs. When seamed to the body of the can, the nibs provide a friction lock between the seam of the can and the nibs on the dome top. It is this lock which is claimed to hold the single-shell overcaps securely in place and permit handling of the filled package without the cap becoming loose.

New nibbed dome top for aerosol cans designed to accomodate single shell metal overcap, just announced by Continental Can Co., New York.

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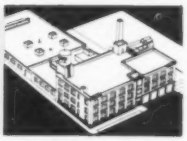

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aerosol patents

No. 2,964,220. Dispenser for Dispensing Pressurized Contents From a Container, patented by Frank H. Appel, San Jose, Calif., assignor by mesne assignments, of one half to Pressure Containers, Inc., and one half to Manfred M. Wareen, Alameda, Calif. A dispenser for dispensing pressurized contents from a container is patented comprising, a valve body adapted for sealed mounting in and extending through a wall of said container and being formed with a shoulder projecting from the normally interior side of said body, said shoulder being formed with an external annular groove, said body being formed with a discharge passage extending from said groove to the normally exterior side of said body, and O-ring mounted in said groove in sealing relation across said passage, and a manually displaceable actuating stem mounted for reciprocation in said passage for engagement of one end of said stem with said O-ring to displace the latter away from its normal sealed position across said passage.

No. 2,963,265. Dispensing Mechanism, patented by Perry Cornell Goodspeed, Jr., Norwich, N. Y., assignor to Cornell Valve Corp., Norwich, N. Y. This patent describes a valve comprising an integral cylindrical seat element of rigid material including an end wall and a side wall integral with the end wall at its periphery, said end wall having a circular central opening constituting an outlet, the portion of the end wall extending marginally about the opening and within the side wall constituting a valve seat, said cylindrical seat element being open at the end of the side wall remote from the end wall to provide an inlet, a valve member of compressible resilient material having a flat base portion and a convex apex portion narrower than and in opposed relation to said base portion and larger in diameter than the outlet, said valve member tapering from the base portion to the apex portion, said valve member having all its dimensions parallel to the base surface substantially smaller than the internal dimensions of the side wall, said valve member being located within the side wall and cooperating therewith to define an annular chamber, a support element for said valve member, said support element being relatively rigid as compared to said valve element and including an end portion of annular cross-section within said annular chamber with its end abutting the end wall and with its peripheral surface frictionally engaging the inside surface of the side wall to center the support element with respect to the side wall, said support element also including a support portion integral with the end portion and having a flat surface transverse to said annular end portion and abutting the flat base portion of the valve member, means including a portion of said support element defining at least one passage providing fluid communication between said inlet and said annular chamber, said valve member and said support element being slidably insertable through the inlet into the cylindrical seat element to a position where the end of the annular end portion is in abutting engagement with the end wall, the peripheral surface of said annular end portion cooperating with the side wall to retain the support element at said position with the support element and the end wall cooperating to compress the valve member to an extent determined only by the dimensions of the valve member and of the support element, said apex portion of the valve member and the end wall cooperating, in the event of misalignment of the valve member apex portion and the outlet, to apply to the valve member a force tending to center the apex portion in the outlet, the abutting flat surfaces of the valve member and the support element accommodating lateral movement of the valve member by said force necessary to accomplish said centering, said support element and end wall then cooperating to hold the apex portion of the valve member in forced sealing engagement with the seat, a valve operating pin, means supporting the pin at the opposite side of the end wall from the valve member and normally spaced therefrom, said pin being smaller in diameter than the outlet, said pin supporting means being movable to shift the pin from its normal position into engagement with the apex portion of the valve member to compress the valve member further and move the apex portion out of engagement with the seat, thereby opening the valve to provide fluid communication between the annular chamber and the outlet.

No. 2,968,428. Gravity Actuated Valves for Pressurized Dispensers, patented by Arthur J. Samuel, Pittsburgh, Pa., assignor to Gulf Research & Development Co., Pittsburgh. This patent claims a gravity actuated valve for pressurized dispensers which permits the dispenser to be discharged without wasteful loss of gas in its upright as well as inverted positions through an eduction passageway which has both a lower inlet at its end adjacent the bottom of the dispenser and a valve controlled inlet adjacent the top of the dispenser, the valve controlling the inlet adjacent the top of the dispenser comprising a fixed tubular part of the eduction passageway which is formed with an upwardly facing horizontal surface, said fixed part formed with a branch of said eduction passageway terminating in an orifice at said horizontal surface, said valve also comprising a slidable member encircling said fixed part and guided in movement thereon to seat by gravity on the upwardly facing horizontal surface of said fixed part, thereby sealing the orifice of the passageway when the dispenser is upright, said slidable member falling away from said orifice to uncover the same when the dispenser is inverted and the orifice is submerged.

Safety Aspects

(*From Page* 99)

The maximum concentration of insecticide in the atmosphere was reached immediately after treatment using an application of five times the recommended dosage. In a typical home where the windows and doors were kept closed throughout the entire test (Test 7), the maximum concentration of insecticide reached was 1.07 mmg per liter of air. In a sealed room (Test 8), the maximum concentration reached was 3.40 mmg. per liter of air; this decreased to 0.47 mmg. per liter of air four hours after treatment.

In a sealed, vacant home (Test 10) (where a 2.5% DDVP insecticide solution was applied to relatively non-absorbent surfaces), the maximum atmospheric concentration of insecticide attained was 4.38 mmg. per liter of air. After 24 hours, this concentration decreased to 0.43 mmg. per liter. At no time during this period was the air allowed to circulate through any openings in the home.

Following application in a closed home of an excessively high dosage of 2 mg. per cu. ft. (Test 9), the maximum atmospheric concentration of insecticide reached immediately after treatment was 3.60 mmg. per liter of air. However, this concentration decreased to 1.50 mmg. per liter after two hours, indicating some aerosol effect may have contributed to the initial high concentration especially in view of the amount of solvent applied (3 quarts) in this relatively small home.

Discussion

The results of the tests reported in Table I show that the atmospheric concentration of DDVP insecticide resulting from application, according to typical PCO

practice, of a 0.5% solution of this insecticide does not exceed 0.5 mmg. per liter in an unventilated house or 1.3 mmg. per liter in a small, sealed bathroom. When the insecticide is applied under practical conditions, the resulting dosages vary from 0.2 to 1.1 mg. per cu. ft. of space. Under excessive conditions (Table II), dosage of the insecticide ranged to 3.7 mg. per cu. ft. of space. This is not alarming because the air contamination produced diminishes in a few hours to very safe limits.

Conclusions

When a 0.5% solution of DDVP insecticide is applied by a pest control operator using accepted procedures, the atmospheric concentrations of the toxicant during and following the application do not present a hazard to human beings. Air contamination data obtained in this study indicate that, if errors would occur either in dilution or excessive dosage up to five times those recommended, inhabitants of the treated dwellings would still not be exposed to a hazardous condition.

Acknowledgment

The authors wish to acknowledge the aid given by the National Pest Control Association and its members, who assisted in the necessary pesticide applications connected with this air sampling program.

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4. "Studies on the Toxicity of O,O-Dimethyl-2,2-Dichlorovinyl Phosphate (DDVP)" — Durham et al, *AMA Arch. Indust. Health, 15*, 340-49 (1957).
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7. "Lightweight Air-Sampling Pumps for Field Use," — Lippmann et al, *Amer. Indust. Hyg. Assoc., 20*, 212-16 (1959).
8. "Semi-Micro Determination of Phosphorus in Organic Compounds — Molybdivanado-Colorimetric Method (Tentative)", Shell Chemical Company (UTSL 12-60).

★

Valve Patent Suit

Newman-Green, Inc., Chicago, recently filed suit against Aerosol Research Co., Forest Park, Ill., by way of counterclaim, for alleged infringement of its patent #2,777,735, having to do with an aerosol valve construction in which the lower end of the removable stem is longitudinally slitted. The suit, pending in the United States District Court in Chicago, is for both injunctive relief against further alleged infringement and for damages for past alleged infringement.

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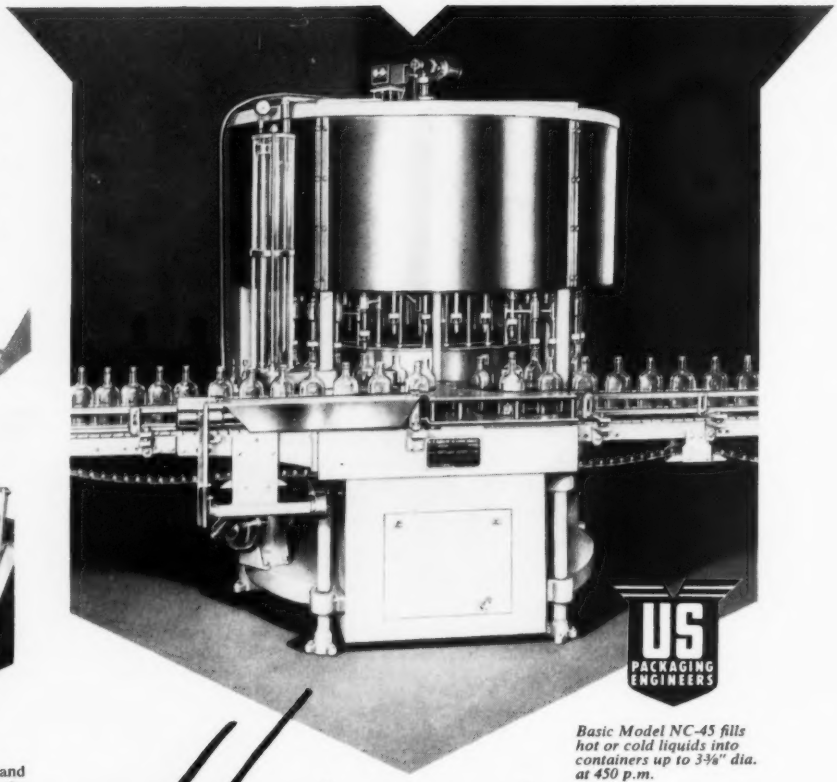

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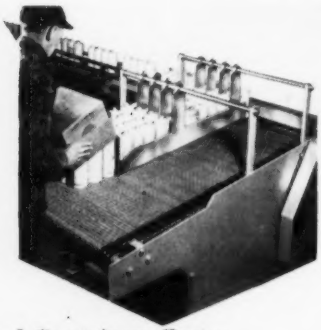

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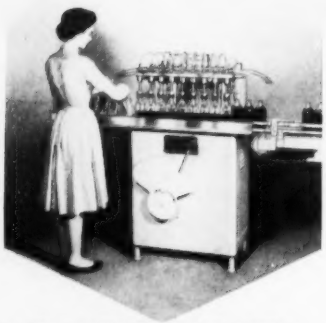

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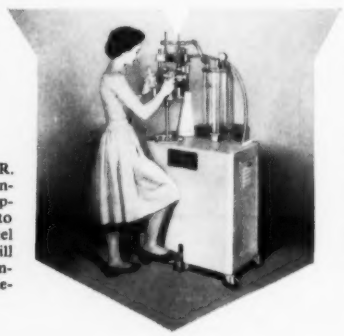

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Soap Plant Observer

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Book Reviews

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Partial view of detergent alkylate plant operated by Oronite Division, California Chemical Co., at Richmond, Calif. Previously devoted entirely to making dodecyl benzenes based on polypropylene, modern plants like the one shown here, are able to produce two alkylates, a dodecyl benzene and a longer chain material for use as an additive. See article on p. 143.

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Trends in Anionic Detergents

By R. Dale Stayner*,
Eastern Sales Manager, Industrial Chemicals,
Oronite Division, California Chemical Co.,
New York, N. Y.

THE popularity enjoyed by anionic surfactants remains firm. Sales of anionics in the United States are currently three-quarters of the total of all surfactant sales. Undoubtedly the favored position of anionics is due to a combination of both desirable performance characteristics and low cost.

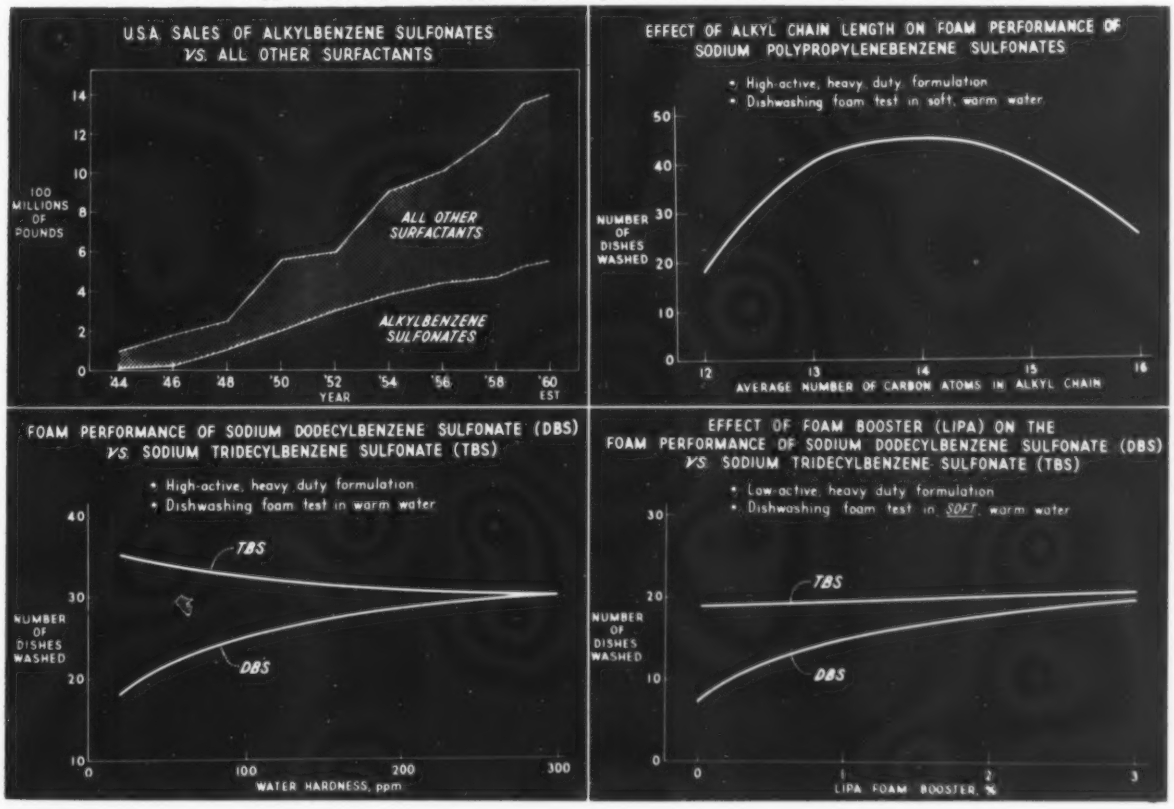
This review highlights recent developments in anionic surfactant technology in an attempt to disclose trends, trends which help in forecasting the future for this important class of materials.

Among anionic surfactants, alkylbenzene sulfonates have maintained a dominant position. In fact, for ten years sales of alkylbenzene sulfonates have accounted for nearly half the sales of all surfactants. (Fig. 1)

From 1946 through 1956 the sales of alkylbenzene sulfonate grew at a rate comparable to that of all other surfactants combined. However, during the 1956-1958 period the sales growth of alkylbenzene sulfonates tended to level off, even though the other types of surfactants continued to show a further twenty percent increase in sales volume. Then, as the result of a technical improvement in alkylbenzene sulfonates, the healthy sales growth of these anionic sur-

*Paper presented at 34th annual convention of Assn. of American Soap & Glycerine Producers, New York, Jan. 26.

Figure 1 (upper left); Figure 2 (upper right); Figure 3 (lower left) and Figure 4 (lower right).


U.S.A. SALES OF ALKYLBENZENE SULFONATES VS. ALL OTHER SURFACTANTS
100 MILLIONS OF POUNDS
ALL OTHER SURFACTANTS
ALKYLBENZENE SULFONATES
YEAR
EFFECT OF ALKYL CHAIN LENGTH ON FOAM PERFORMANCE OF SODIUM POLYPROPYLENEBENZENE SULFONATES
• High-active, heavy duty formulation
• Dishwashing foam test in soft, warm water
NUMBER OF DISHES WASHED
AVERAGE NUMBER OF CARBON ATOMS IN ALKYL CHAIN
FOAM PERFORMANCE OF SODIUM DODECYLBENZENE SULFONATE (DBS) VS. SODIUM TRIDECYLBENZENE SULFONATE (TBS)
• High-active, heavy duty formulation
• Dishwashing foam test in warm water
TBS
DBS
NUMBER OF DISHES WASHED
WATER HARDNESS, ppm
EFFECT OF FOAM BOOSTER (LIPA) ON THE FOAM PERFORMANCE OF SODIUM DODECYLBENZENE SULFONATE (DBS) VS. SODIUM TRIDECYLBENZENE SULFONATE (TBS)
• Low-active, heavy duty formulation
• Dishwashing foam test in SOFT, warm water
TBS
DBS
NUMBER OF DISHES WASHED
LIPA FOAM BOOSTER, %

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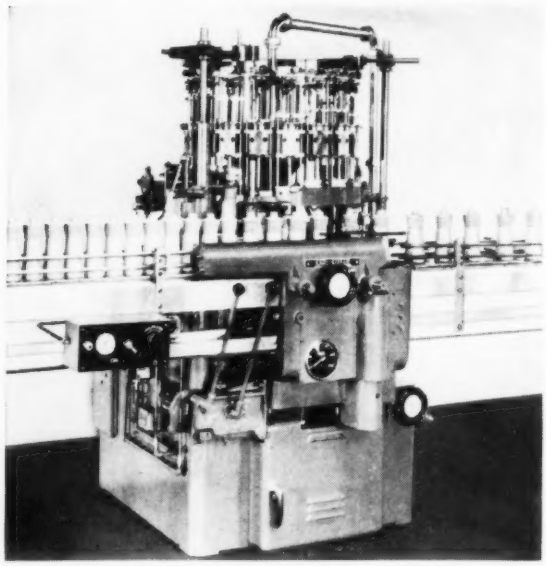

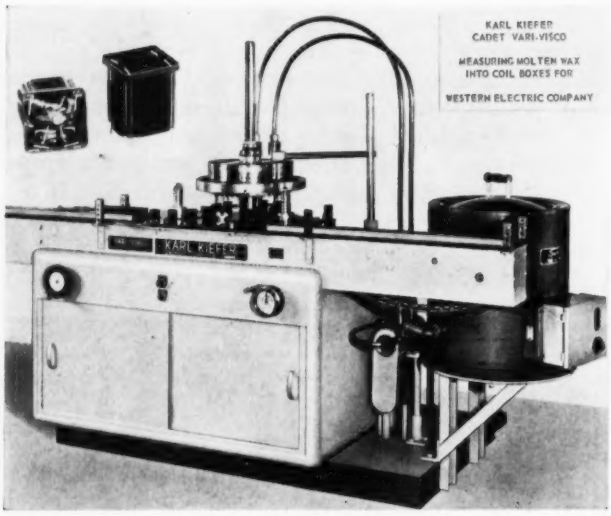

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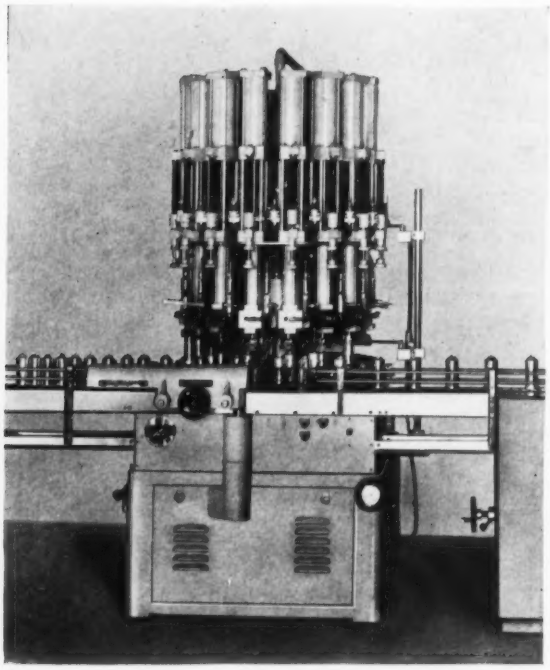

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factants revived in 1959. This development is of special interest.

Until 1958 the only detergent alkylates marketed widely in the United States were dodecylbenzenes based on polypropylene. Under some use conditions dodecylbenzene sulfonates tend to be deficient in sudsing and cleaning effectiveness. For example, when used at low concentrations in soft, warm water, dodecylbenzene sulfonate formulations require foam booster additives, or other surfactant actives, to give an adequate volume of lasting suds. This deficiency of dodecylbenzene sulfonates in heavy duty formulations can be overcome by increasing the length of the alkyl chain. This is shown in Fig. 2.

Results of dishwashing foam tests shown here indicate that, in the case of a high active, heavy duty formulation, more soiled dishes can be washed to extinction of foam if the polypropylenebenzene sulfonate has an alkyl chain length of between 13 and 15 carbon atoms rather than longer or shorter lengths.

Longer Chain Alkylates

Recognizing the superior foam performance of C_{13}–C_{15} alkylbenzene sulfonates, American detergent alkylate producers constructed new plants, or modified their plant operations, so that they could produce two alkylates, a dodecylbenzene and a longer chain material. These longer chain materials, referred to in the trade as tridecylbenzenes, have average alkyl chain lengths in the order of 13 to 13.5 carbon atoms.

Advantages in sudsing of a commercial tridecylbenzene sulfonate in a high active, heavy duty formulation are illustrated in Fig. 3. Tridecylbenzene sulfonate is significantly better than dodecylbenzene sulfonate in soft, warm water. In hard water, the sulfonates are equally good in suds performance.

In low active, heavy duty formulations, tridecylbenzene sulfonate reduces the need for foam boosters such as lauric isopropanolamide. (Fig. 4) Without foam booster, dodecylbenzene sulfonate is definitely deficient in sudsing in soft, warm water. The presence of lauric isopropanolamide is necessary in this formulation to achieve satisfactory performance. On the other hand, tridecylbenzene sulfonate is satisfactory even in the absence of foam booster. Since tridecylbenzene sulfonate requires less additive in this formulation, it offers a substantial cost savings to the detergent formulator.

Results of laboratory screening tests for measuring cleaning effectiveness are shown in Fig. 5. Cotton cloth swatches soiled with carbon black were washed in a Tergo-tometer using high active, heavy duty formulations. Good cleaning effectiveness was achieved with the tridecylbenzene sulfonate formulation at a concentration half that required for the dodecylbenzene sulfonate formulation. Practical detergency tests confirm that higher molecular weight alkylbenzene sulfonates are more effective detergents in soft, warm water than dodecylbenzene sulfonates. In hard water there appears to be no substantial difference in detergency performance between two sulfonates.

The presence of tridecylbenzene sulfonates in light duty formulations provides a modest improvement in performance characteristics in very soft water. However, because of the lower solubility of tridecylbenzene sulfonates, more solubilizer is needed in liquid formulations.

The superior performance or greater economy offered by tridecylbenzene sulfonates ensures their success as valuable supplements to dodecylbenzene sulfonates.

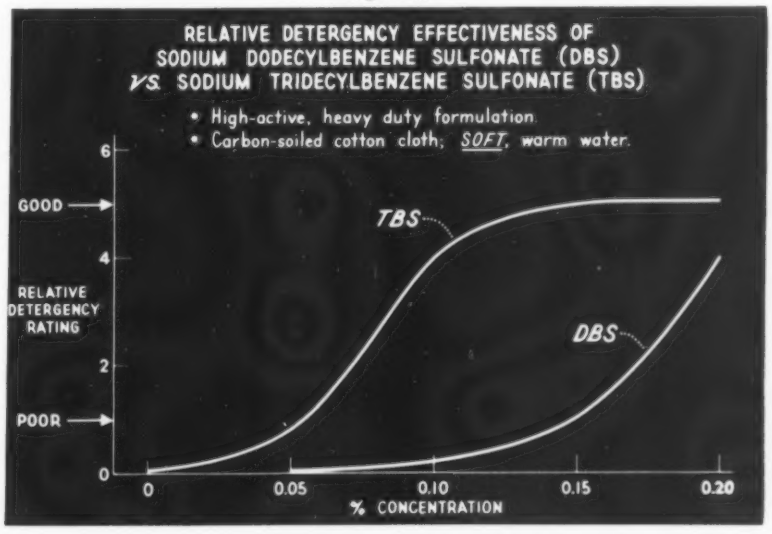
Fatty Alkyl Sulfate Trends

Trends among other types of anionic surfactants also are of interest. The versatility of lauryl sulfate continues to manifest itself. For example, the number of types of formulations using lauryl sulfate for dentifrices, shampoos, "combars" and household detergents increases steadily. As in the case of alkylbenzene sulfonates, some properties of lauryl sulfate are improved by lengthening the alkyl chain. Tallow-derived alkyl sulfates are now preferred over those from coconut oil for use in heavy duty detergents because of their milder skin effects as well as their lower cost. Ethoxylation prior to sulfation improves skin effects of lauryl sulfate when used in detergents for dishwashing, further evidence of its versatile nature.

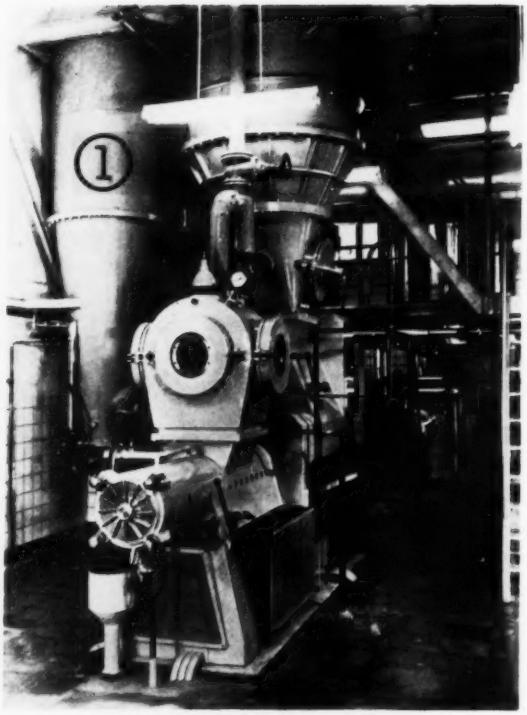
Currently, in the United

(*Turn to Page* 158)

Figure 5.



G. MAZZONI, S. P. A.



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They perform better: 100% "Beta Phase" is guaranteed and gives extra mildness and extra foam even without coconut oil . . . no twisting or distortion!

They are extremely flexible: The same plant also can manufacture pure or built household soaps, flake and powder dried base, etc. from 35 to 84% T.F.A. and more.

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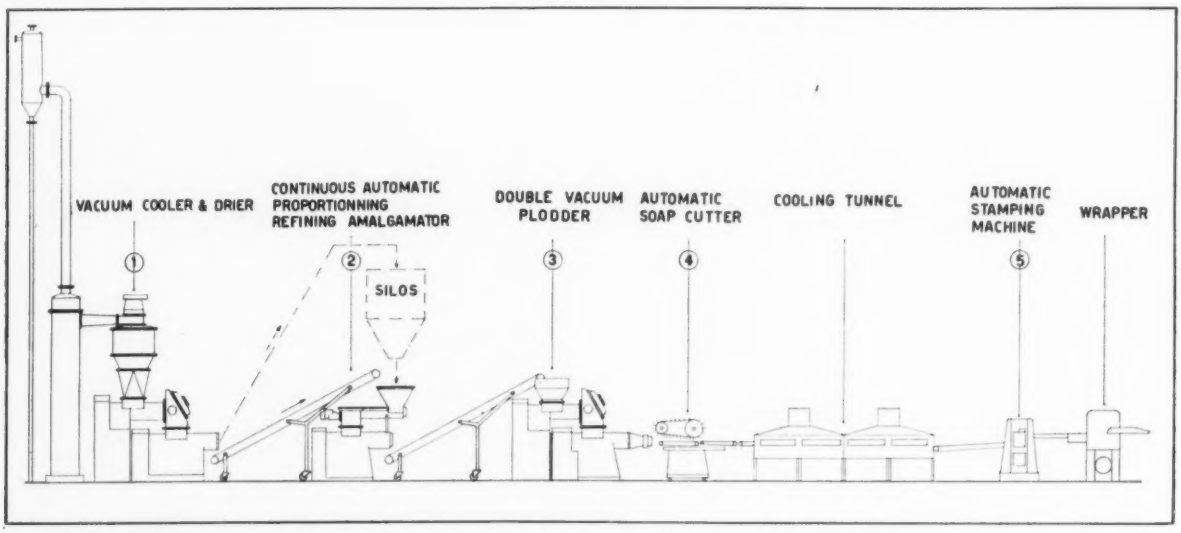

Layout of our continuous toilet soap line. Fully continuous or batch processing possible using chips silos. Our line automatically produces fully refined, first class toilet soap with no roll mills. The individual machines that are employed in the above sketch appear on this and the facing page. A complete line or individual units are available with production capacities of 250 to 1500 Kgs. per hour.

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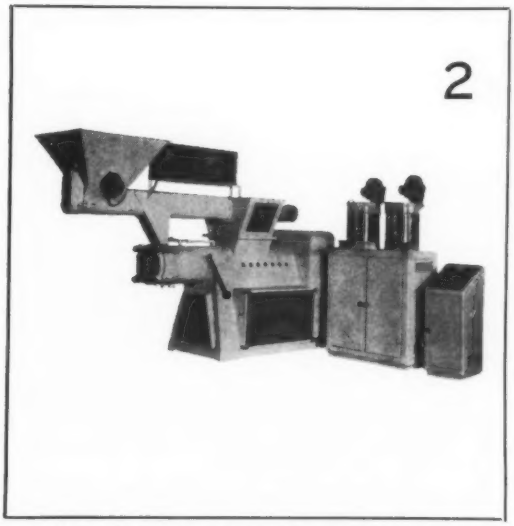
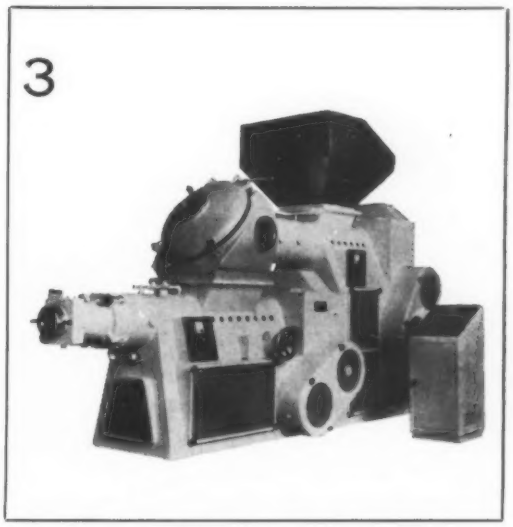


CONTINUOUS AUTOMATIC PROPORTIONING REFINING AMALGAMATOR



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Units shown on this page are available individually. They appear as numbered in production line diagram on facing page.

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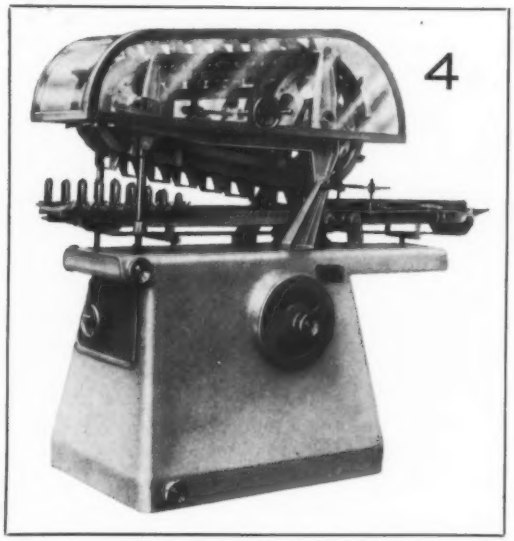

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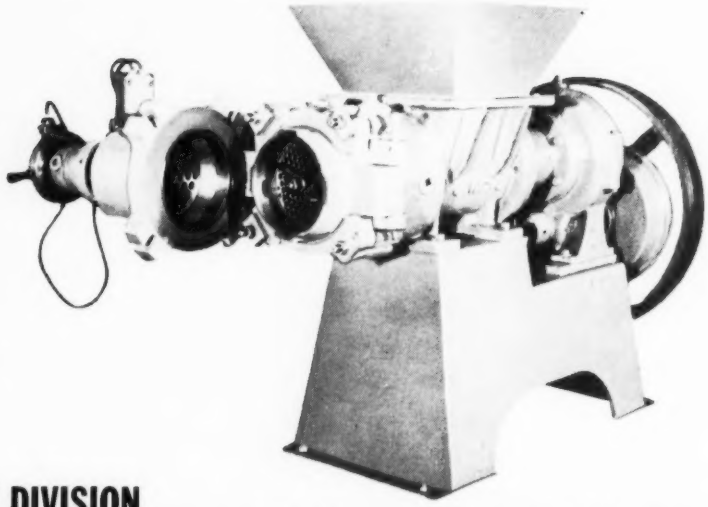

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soap plant observer

By Willis J. Beach,
Technical Service Department,
Sugar Beet Products Co.

OF all staff assignments in the chemical specialties plant, the greatest degree of well rounded experience is probably required for technical service. An insight into the myriad duties and responsibilities of the technical service man in a well managed sizeable chemical specialties firm is offered by Stanley Coryell of R. M. Hollingshead Corp. in a paper published in the December 1960 issue of *Soap and Chemical Specialties.* (Paper originally presented at the third annual meeting of the Canadian Manufacturers of Chemical Specialties Association.)

The problem confronting the small soaper in organizing for technical service is somewhat different. But he too must also depend on well-rounded experience of considerable depth. The chances are that his firm will not have as many products covering as many fields of application as is the case in the larger firm. On the other hand, he is limited in the number of experienced technical men he can assign to this function.

Technical service in the small specialty house usually involves something more than service to sales. In some organizations it means service to any department of the company needing technical assistance.. For production, it may cover the development of specifications for raw materials as well as the responsibility for testing them for conformance. It may include the responsibility for maintaining quality control facilities for manufacturing, both on products during process and on finished products. And it may mean trouble shooting to seek out and overcome process discrepancies that are not readily apparent to the production supervisor. In some companies technical

service also includes development of appropriate rules and procedures for processing, packaging, sampling, etc., that may be termed "process or manufacturing standards."

Technical service in a small company must also embrace the sales aspects reviewed by Mr. Coryell. These include thorough product application knowledge, study of competitive products, product quality, containers and packaging, customer complaints, labelling, copy control, field testing, conformance with governmental regulatory laws, and the correct handling of communications relating to all of these.

In the small firm, the technical man has to perform two other important services. To him usually falls the job of imparting to the salesman product knowledge, and the preparation of reports that translate technical matters into meaningful information which can serve as a basis for management decisions.

How does the technical man organize for technical service involving such a wide variety of duties? One small company that is quite successful in handling technical service has organized on a product basis. The company's products are divided up among its principal chemists. Each of these men functions somewhat like a product manager, and is responsible for the success of the products in this group. The technical man is assigned to the product at the development stage. He is responsible for it during early screening and testing. He exerts considerable influence on development of a process of manufacture that will insure a constant level of quality to meet the specification the company has established for the new product. Quality control on raw materials and on finished product may be under his supervision. He is consulted on packaging, labelling, directions for use, and on the product's selling points for the development of sales promotional copy.

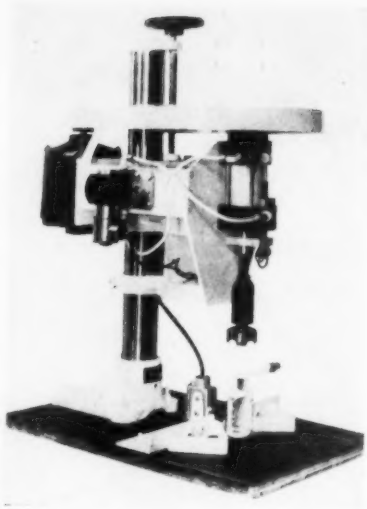
Once the product is launched, the technical service man is expected to assist both the salesman and the customer in the technical aspects of problems associated with the product's introduction, application and daily use.

This all sounds like a large order—and it is. However, it must be realized that these technical service men are industrial chemists of long experience, and that, in the small firm, new products do not flow off the production line with quite the same frequency as they do in the larger ones. It must also be recognized that, with technical service so organized, the key men have time only to hit the high spots. This is somewhat disconcerting to the man who occasionally realizes that a little more time and study on a particular assignment would have resulted in a better job. The technical service man in

this position must always keep uppermost in his mind the necessity for a proper balance between the time he spends on a project and its probable profit to the company.

Organizing for technical service along product lines has merit, however. It affords the opportunity for knowledge in depth on all aspects relating to the product. The technical service man has within his knowledge and possibly even within his control most of the forces within the company that influence the product's welfare, improvement and continued growth. He has at his disposal just about all the facilities needed for good product management and if he gets the assistance he will need from company management, he has a pretty good setup.

Technical men in large companies sometimes fail to comprehend the role of their counterparts working in the small firm. A technical service man we know who served with a small firm, made application for employment with one of our largest chemical companies, in a division making his specialty. He was turned down on the basis that the large company could not use one with his particular experience — which seemed hard to believe. At a chemical meeting he chanced upon a friend of his, an engineer employed in the department which had received the application. The engineer told our chemist friend that the supervisor in charge had studied the application very carefully. It described all the duties this technical service man was required to perform in the small company. The supervisor set aside the application with the following comment. "This guy is either a genius or he is throwing the biggest line of bull I've ever heard. In either case, he wouldn't fit in here." My technical service friend is neither a genius nor a liar. It was obvious that the big company supervisor had never had the experience of technical service in a small company. I am of the opinion that the large company could have made good use of my friend's well-rounded background.



"Whirlwind" screw capper by Scientific Filter Co. handles up to 72 polyethylene bottles a minute.

—★—

Two Versatile Cappers

Two new capping machines were introduced recently by Scientific Filter Co., New York. Portable, air operated "Whirlwind" screw capper with electronic controls, and "Roll-Tite" semi-automatic, universal screw capper are now being marketed by the firm.

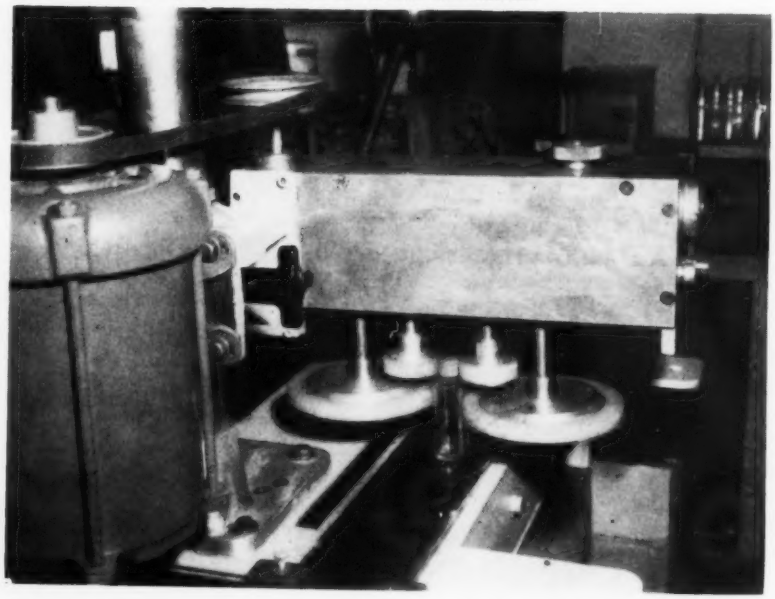
Two operators are required to tighten plastic dispensing spouts on polyethylene bottles at the rate of 72 per minute on the "Whirlwind" unit. The spout is placed loosely on the container which is inserted into a "V" shaped guide, where it makes contact with a micro-switch. This initiates the automatic capping cycle.

A compact portable machine, equipped with its own motor drive and suitable for mounting over any conveyor, the "Roll-Tite" capper handles a wide variety of lug and screw closures on glass, tin and plastic containers at speeds of up to 200 units per minute.

Two large rotating plastic wheels hold the container firmly and propel it along the conveyor, and two smaller rotating wheels roll the cap down to the required tightness.

Long life plastic wheels withstand the abrasive action of serrated metal and ribbed molded closures as well as that of odd shaped containers. Only two hand wheels govern the adjustment for width of diameter of the containers and closures, facilitating quick change overs.

Portable semi-automatic screw capper trade named "Roll-Tite" is manufactured by Scientific Filter Co., New York. Unit handles wide variety of lug and screw closures on glass, tin and plastic containers of various dimensions.



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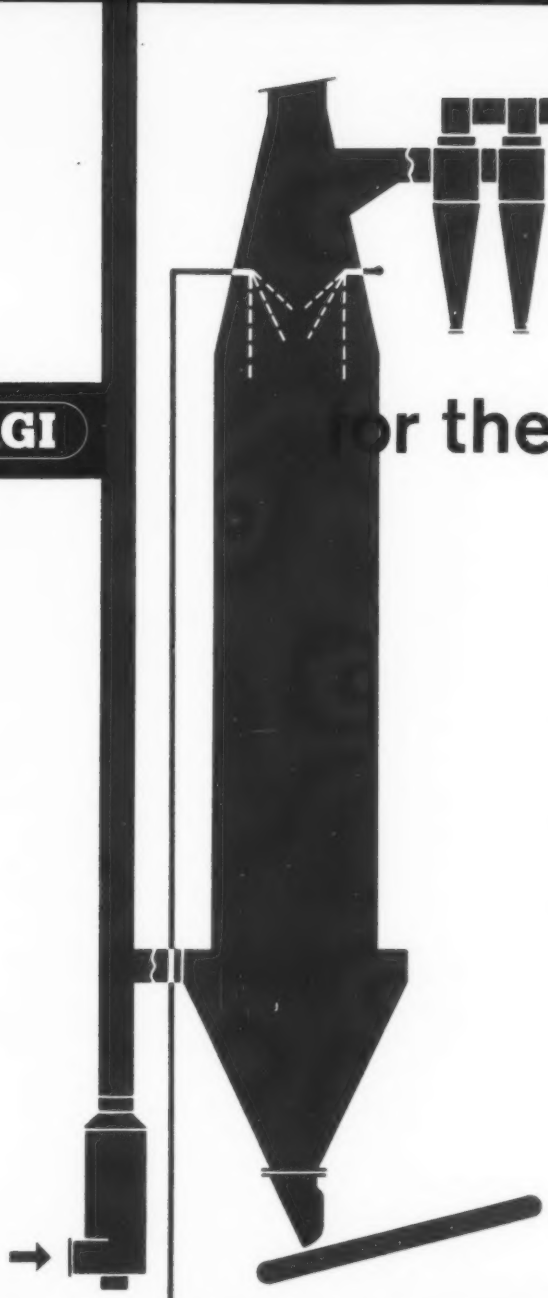

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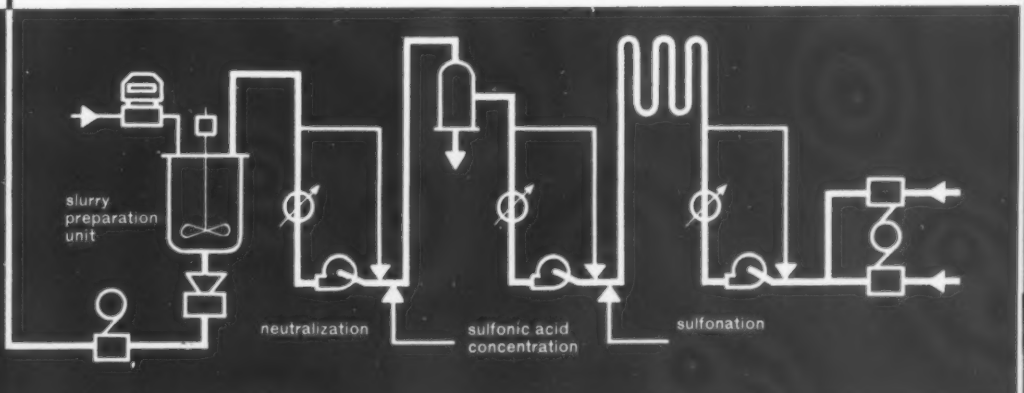

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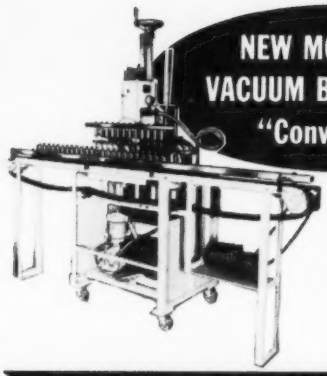

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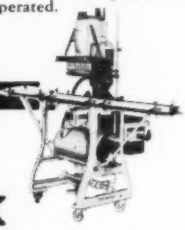

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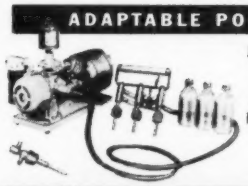

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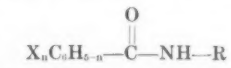
new patents

Listed below are brief abstracts of recently issued patents. Complete copies may be obtained from the publisher of this magazine: — MacNair-Dorland Co., 254 W. 31st Street, New York 1, N. Y. Remit 50¢ for each copy. For orders received from outside of the United States send $1.00 per copy.

No. 2,965,575. Antiseptic Detergent Compositions, patented by David J. Beaver, Richmond Heights, and Paul J. Stoffel, Florissant, Mo., assignors to Monsanto Chemical Co., St. Louis, Mo. Described is an antiseptic detergent composition comprising an organic detergent selected from the class consisting of anionic detergents, non-ionic detergents and mixtures thereof and 0.1 to 50% by weight based on said detergent of a halogen substituted benzanilide of the structure

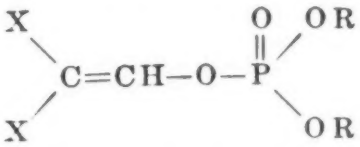


where X is a halogen selected from the group consisting of chlorine and bromine, where *n* is a whole number from 1 to 3, where the radical $X_nC_6H_{5-n}$ is free of substituents ortho to the carbonyl carbon, and where R is a halogen substituted benzenoid hydrocarbon radical containing from one to three halogens selected from the group consisting of chlorine and bromine, the total number of halogen substituents in said benzanilide being at least 3.

No. 2,968,590. Synergistic Boric Acid Fungicidal Compositions, patented by Jean Ploquin, Surgeres, France, assignor to Etab. Sergent Laboratoires Prolac, Surgeres. This patent claims an anti-fungal product comprising, in synergistic combination, boric acid and an organic compound, in an amount of from about 0.2 to about 5.0 mols per mol of boric acid, selected from the group consisting of lactic acid, salicylic acid and propylene glycol; combined with water and sufficient base to provide a pH of between about 9 and 11.

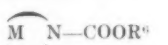
No. 2,964,447. Polymer-Metal Process, patented by William A. Hosmer, Lee, Mass., assignor to General Aniline & Film Corp., New York. This patent teaches the method of preparing a water-soluble detoxicated compound which comprises mixing together a polyvinylpyrrolidone-iodine complex, formed by intimately mixing together polyvinylpyrrolidone and elemental iodine and then heating the resulting mixture to about 100° C., with from 1 to 2 molar equivalents, based on the amount of available iodine, of a heavy metal selected from the group consisting of mercury, antimony and bismuth, and then heating this resulting mixture to a temperature of about 100° C. whereby there is formed a water-soluble product containing polyvinylpyrrolidone, iodine and said heavy metal.

No. 2,968,591. Control of Cigarette Beetles With Vapor of DDVP, patented by Ralph L. Tracy, Miller Place, N. Y., assignor to Norda Essential Oil and Chemical Co., New York. This patent teaches a process for the control of the cigarette beetle *Lasioderma serricorne* L., which comprises subjecting the beetle to an atmosphere comprising a lethal concentration of the vapor of a dialkyl halovinyl phosphate of the formula



wherein each X is halogen, and each R is an alkyl radical having from one to three carbon atoms.

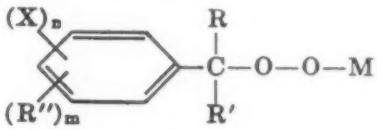
No. 2,963,398. Synergistic Insecticidal Compositions, patented by Howard A. Jones and John A. Garman, Baltimore, and Berton C. Dickinson, Lydonville, N. Y., assignors to Food Machinery and Chemical Corp., New York. Described is a method of killing insects which comprises applying to the insects and their habitat synergistic insecticidal compositions comprising O,O-dimethyl S-(1,2-dicarbethoxyethyl) dithiophosphate and an organic carbamate ester



wherein M is selected from the group consisting of ethyleneoxyethylene, tetramethylene and pentamethylene and R^6 is phenyl, said components being present in the ratio of about 2 parts in said carbamate ester to about one part of said dithiophosphate.

No. 2,967,832. Polyphosphate Detergent Compositions Containing Dicyandiamide Tarnish Inhibitor, patented by Charles E. Light, Darien, Conn., assignor to American Cyanamid Co., New York. This patent claims a detergent composition suitable for use in washing copper-containing metals comprising from about 15 to 35 parts by weight of an organic detergent, about 5 to 50 parts of an inorganic alkali metal polyphosphate normally causing tarnishing of said copper-containing metal and, as a tarnish-inhibitor for said polyphosphate, from 0.01 to about 2 parts by weight of dicyandiamide.

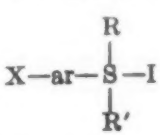
No. 2,970,081. Mycobacteriostats, patented by Ernest Bryson McCall, Llangollen, Wales, and David Alexander Lindsay Seiler, Burnham, England, assignors to Monsanto Chemicals, Ltd., London. Covered is a solid organic composition selected from the group consisting of soaps, waxes, and plastics which have therein a bacteriostatic amount of the compound of the structure



wherein X is a halogen atom and R, R′, and R″ are selected from the group consisting of alkyl groups having up to 4 carbon atoms and halo substituted alkyl radicals of which the alkyl radical has up to 4 carbon atoms; wherein *m* and *n* are integers from zero (0) to two (2); and wherein M is an atom selected from the group consisting of hydrogen and salt forming metals.

No. 2,967,798. Insecticidal Repellent, patented by Willis N. Bruce, Champaign, Ill., assignor to Lee Ratner, Miami Beach, Fla. An insecticidal repellent is described comprising a combination of di-n-butyl succinate and an insecticide selected from the group consisting of pyrethrum, allethrin, and cyclethrin wherein said succinate makes up from about 99.5% to about 10% and said insecticide makes up from about 0.5% to about 90% by weight of said combination.

No. 2,965,538. Biological Toxicants, patented by William E. Weesner, Dayton, assignor to Monsanto Chemical Co., St. Louis, Mo. The patent teaches the method of inhibiting the growth of organisms selected from the class consisting of bacteria and fungi which comprises exposing said organisms to a toxic quantity of a composition comprising an inert carrier and a complex of (1) a (haloaryl) dialkylsulfonium iodide of the formula



in which X is selected from the class consisting of chlorine, bromine and iodine, ar denotes an aryl radical of from 6 to 12 carbon atoms and R and R′ denote an alkyl radical of from 1 to 8 carbon atoms and (2) a halide which is selected from the class consisting of the chloride, bromide and iodide of a metal of the 1-B and 2-B groups of the periodic table.

The LEHMANN VORTI-SIV

. . small size, tremendous output

This screening machine is unique in that its gyratory action is adjustable both in speed and radius of gyration. When the optimum relationship between these two factors is reached throughputs are multiplied.

In four square feet of floor space, therefore, the Vorti-Siv gives production that would require many times that area in any other type of screening machine. The unit has casters, making it easily movable from one location to another.

The Vorti-Siv processes powders, liquids and slurries in meshes from 4 to 400 which can be changed quickly. The screen is practically non-blinding and cleanup takes only a few minutes.

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Duncan Equipment Co. 506 Broadway Seattle 22, Washington	Geo. R. Mellema Co. 620 Plymouth Building Minneapolis 3, Minnesota	Morton-Myers Co. 220 E. Missouri Avenue Kansas City 6, Missouri	E. C. Swift Co. 3537 Lee Road Cleveland 20, Ohio
Halsell Brokerage Co. 3101 Walnut Street Denver 5, Colorado	Geo. E. Missbach & Co. 3330 Peachtree Road, N.W. Atlanta 5, Georgia	Rawdon Myers Agency Blue Ash Center Bldg. Cincinnati 42, Ohio	Webster Equipment Co. 549 W. Randolph St. Chicago, Illinois

Sada y Himes S.A., Apartado 911, Padre Mier 1250 Pte., Monterrey, N.L., Mexico

See our advertisement in Chemical Engineering Catalog

Drum Heating Device

A new type of drum heating or cooling device has been developed by Dean Products, Inc., 1048 Dean Street, Brooklyn 38, N. Y. The unit actually is a cradle consisting of two semi-cylindrical sections of "Panelcoil," which are permanently mounted on a steel structure. Top and bottom section of a 55 gallon drum resting horizontally in the cradle fit snugly against curved panels. Middle section and bung end of drum remain accessible.

Hot water or steam at pressures of up to 125 psi or refrigerant are circulated through the panels. Rigid or flexible piping may be permanently or temporarily connected to the "Panelcoils," making the equipment movable if desired.

The shaped "Panelcoils" may be purchased by the user to mount on any support of his own design. As an alternative the complete unit may be bought.

—★—

McCutcheon Patent Service

Firms in the detergent, soap, fatty acids, and related fields can now subscribe for a specialized patent service covering new and expiring patents, both foreign and domestic. The new service has been set up and is being operated by John W. McCutcheon, 475 Fifth Avenue, New York. Mr. McCutcheon is a consultant in the above industries and author of "Surfactants Listed" as well as numerous other contributions published in *Soap and Chemical Specialties*.

Facsimile copies of patents, translations of foreign language patents, and coded abstract reference cards ("Keysort" system) for all patents reported are included. Patent data are mailed first class on a semimonthly basis, at the following yearly fees: Detergents and emulsifiers, $250.00; soap and glycerine, $200.00; fatty acids and derivatives, $300.00; oils and fats, $250.00; and all four groups combined, $800.00. "Keysort" card service alone is $150.

products and processes

Lotion Type Detergent

Dishwashing detergents and shampoos are commonly formulated with an opacifier. Essential function of this additive is to reduce translucency and provide whiteness or opacity without detracting from detergency. Pearlescent and lotion type opacifiers are available, the lotion type usually finding preference for dishwashing formulations. A formula for this type of product suggested in the Feb. 1961 issue of *Chemical Progress,* external house organ of Union Carbide Chemicals Co., 270 Park Avenue, New York 17, calls for the following components:

Dishwashing Compound

	% by weight (active basis)
Part A	
"Kessco" opacifier X-435 (Kessler Chemical Co.)	2.0
"Tergitol" nonionic NP-33 (Union Carbide Chemicals Co.)	1.4
Water	10.0
Part B	
"Tergitol" nonionic NP-33	8.6
Alkyl aryl sulfonate	20.0
Lauric diethanolamide	5.0
Ethanol	2.0
Water	q.s.
	100.0

Procedure: Heat ingredients of Part A to 90°C. with slow subsurface agitation. Allow the mixture to cool to 35°C. with similar agitation. In a separate container add the "Tergitol" NP-33, lauric diethanolamide and ethanol called for in Part B, and stir until homogeneous. Add the water of Part B, and stir until homogeneous. Then add the alkyl aryl sulfonate, again stirring until smooth. Transfer A to B and stir until completely dispersed.

—★—

Sulfamic Based Cleaners

Two new dry chemicals for cleaning boiler and process systems—an alkalinity-pH depressant and an acid cleaner—have just been introduced by Ionac Chemical Co., Division of Pfaudler-Permutit, Inc., Birmingham, N. J. Based on sulfamic acid, both products are suggested for use in boilers, heat exchangers, condensers, evaporators, process vessels, and piping. They are claimed to be good removers of beerstone and milkstone and find application as depressors of alkalinity and pH in circulating water systems.

Containing over 95 per cent active acid, the products are said to act rapidly and form readily water soluble reaction products. Carbonate scales dissolve completely in "Ionac Dry Acid Cleaner 1332" and other types of deposits, including those containing iron oxide, may be removed by adding one pound of ordinary salt to each pound of the cleaner.

Both "Cleaner 1332" and the alkalinity-pH depressant "1331" come in 50 and 100 pound drums.

—★—

Antitarnish Silver Spray

An invisible silicone based antitarnish finish for silver hollowware may soon become available in an aerosol can for consumer use. Currently, such a coating is available only to silver manufacturers for in plant application by low pressure spray equipment or dipping methods. A pressure packaged consumer version of the product is being tested by Union Carbide Chemicals Co., according to the Feb. 1961 issue of *Chemical Progress,* Carbide's external house organ.

Pressure dispensed with "Ucon" (Union Carbide) fluorinated hydrocarbon propellants the finish will be applied by spraying the silver piece thoroughly from a distance of four to six inches. The formulation is said to dry, tack free, in less than 15 minutes leaving a protective film on the silver, which is claimed to resist tarnish even after repeated handling, washing and contact with food stuffs.

Data on New Antimicrobial

Bis (tri-*n*-butyltin) oxide, said to combine antimicrobial properties with great affinity for cellulose, is described in a data sheet just published by Metal & Thermit Corp., Rahway, N. J. Trade-named "TBTO," the material is said to be active against fungi, bacteria, algae and marine organisms. It comes as a slightly yellow clear liquid containing more than 95 per cent active ingredient.

Staphylococcus aureus 80/81 is said to be susceptible to "TBTO." Formulations based on this compound are currently being marketed for hospital use, Metal & Thermit reports. Other actual or suggested uses include odor control for washed fabrics, control of algae and fungi in industrial cooling systems, antifouling paints, mildew control of plastic and paper surfaces.

Copies of the technical data sheet, additional information and sample quantities of the material may be obtained from Metal & Thermit Corp., Rahway, N. J., or from M & T Products of Canada, Ltd., 172 Belfield Road, Rexdale, Ont.

—★—

Household Syndet Bar

Economy in use is claimed for a bar form synthetic detergent intended for household use. A synthetic detergent filler or binder and a germicide and/or deodorizer are formed into a block or bar. This is accomplished by applying pressure to a quantity of detergent in a mould. When the finished bar is placed in water a certain portion is dissolved. The undissolved portion can be reused.

Solubility rate of the bar is determined by its hardness. This in turn is controlled by the nature of the filler or binder and by the pressure applied in making the bar. British patent 950,366; C. D. Young, Bristol, England.

If your liquid detergent employs an alkyl aryl sulfonate...

Krystallex SX*

...WILL VERY SUBSTANTIALLY LOWER YOUR FORMULATION COST!

■ Here is a purer form of dodecyl benzene sulfonic acid which is characterized by its very low free sulfuric acid content. It can be easily neutralized with a wide choice of alkalies and amines to produce a very light oil-or-water soluble sulfonate — free from the usual objectionable odors.

YOUR TOTAL COST IS ABOUT HALF WHAT YOU NOW PAY FOR A DRIED OR LIQUID ALKYL ARYL.

In addition, you gain a freedom of formulation—and further saving—coupled with opportunity for product improvement not available when you purchase the more costly neutralized material.

There are other interesting economies . . . write for data sheet, test sample, prices . . . For formulation suggestions, correspond with our Technical Service.

*Active sulfonic acid 92.0 min. Free sulfuric acid 1.5 max. Free oil 1.5 max. Moisture 5.0 max.

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Krystallex S-63. specially purified sodium dodecylbenzene sulfonate. Clear and odorless liquid. Excellent base for clear liquid formulations such as liquid dishwashing detergents.

Krystallex S. A conventional dodecylbenzene sulfonic acid.

Krystallex S-75. An ammonium alkyl phenoxyethylene sulfate.

Krystallex LA. A 100% active non-ionic fatty acid alkanolamide manufactured for use as a foam stabilizer.

Krystallex CD. An unmodified coconut fatty acid alkanolamide useful for thickening, etc.

Krystallex CDA. A modified coconut fatty acid alkanolamide used in scrub soap concentrates. Has outstanding resistance to hard water.

Krystallex C. sodium lauryl sulfate—characterized by its uniform high viscosity—excellent base for creme shampoos.

Krystallex A. A sodium lauryl sulfate with a very low salt content and low viscosity.

Krystallex T. A triethanolamine lauryl sulfate. High activity, low cloud point, very light color and color stability toward light.

Krystallex S-26. A new detergent manufactured exclusively for shampoo use.

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book reviews

Sugar Based Syndets Data

"Sucrose Ester Surfactants" is the title of a new 17-page booklet available from the Sugar Research Foundation, 52 Wall Street, New York 5. After briefly tracing the development of a process to convert sucrose into surfactants, the booklet deals with the question: "What is a Surfactant?", classifies these materials and places the sucrose esters among the low foaming nonionics.

Emulsifying properties and detergency are cited as the main attributes of the sucrose esters. Processing costs will determine their competitive position as ingredients of commercial detergents. Special applications where sugar esters can compete due to their unusual characteristics include the washing of fruit and vegetables to remove soil and residues of insecticidal sprays without introducing foreign flavors or toxicity problems. Use of sugar based detergents in shampoos and other cosmetics is suggested by their nonirritating and nontoxic character.

Cost, preparation, and the patent situation receive attention. Method and apparatus for the laboratory preparation of sucrose esters are fully described and a bibliography containing 56 references is appended.

The booklet may be obtained from the foundation or from Foster D. Snell, Inc., 29 West 15th Street, New York.

—★—

Carbide Data on Silicones

An 18 page illustrated folder describing silicones and their uses has just become available from the Silicones Division, Union Carbide Corp., 270 Park Avenue, New York 17. The booklet tells what silicones are and includes a series of charts covering properties and actual and potential uses of silicone fluids, resins, water repellents, anti-foams, emulsions, and rubber compounds.

Automotive and furniture polishes, window cleaning sprays, hair sprays, barrier creams, oven and metal cleaners, water and soil repellent sprays for textiles, masonry and leather, lubricants and antifoam compounds are just a few of the chemical specialties commonly incorporating silicones. In addition to a host of uses in consumer products, silicones serve as industrial processing aids as well as basic chemicals in a wide variety of fields.

"Silicones are man-made chemical combinations of inorganic and organic materials," the booklet says. "They are available as elastomers, resins, oils, reactive monomers and intermediates that retain the inertness of inorganics, yet offer a range of properties and physical forms previously available only from organics."

—★—

Trade Assn. Directory

A new U. S. Department of Commerce Publication, *Directory of National Associations of Businessmen: 1960,* containing data on over 2,000 national associations, is available from the Superintendent of Documents, U. S. Government Printing Office, Wash., 25, D. C., at 50 cents a copy. Copies may be ordered directly or through one of the Department of Commerce Field Offices in 33 key cities. The new directory supersedes a similar one issued in 1956.

Data presented on each organization include number of members, size of staff, name and title of the chief executive, year organized, and the mailing address. Through use of a "Key Word Index," all associations listed in the directory in any specific field can easily be found.

In addition, the directory also lists about 100 societies of engineers and scientists.

Microbiology Handbook

Methods for testing antiseptics and disinfectants and a comprehensive table of phenol coefficients are included in the information supplied in the newly published *Handbook of Microbiology*, by Morris B. Jacobs and Maurice J. Gerstein. The volume is a compilation of current knowledge in the field, presented in the form of 38 tables arranged for ready reference.

The first table, occupying 150 pages, gives the characteristics of microorganisms. Information is tabulated by the use of key words in key positions. It covers cellular, cultural, physiological, and biochemical characteristics; taxonomy and pathogenicity.

Methods of culturing and staining microorganisms; tests whereby they can be differentiated and biochemical methods for testing biologics are fully described in other tables. Information on antibiotics, toxoids, antitoxins, vaccines and on bacterial, rickettsial and viral diseases is presented.

Sanitarians and sanitary engineers will find this handbook useful and practical as will medical and industrial bacteriologists, food chemists and others concerned with microbiology.

Morris B. Jacobs, senior author, is associate professor of occupational medicine at Columbia University, New York. He was previously associated with New York City's Department of Health and Department of Air Pollution Control. Maurice J. Gerstein is acting chairman, department of biology of William H. Maxwell Vocational High School, Brooklyn, N. Y.

Handbook of Microbiology, by Morris B. Jacobs and Maurice J. Gerstein, published by D. Van Nostrand Co., Princeton, N. J., Dec. 1960, 322 pages, cloth bound, price $8.50.

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The new compact Moisture Teller No. 277 reaches a preset drying temperature faster than any similar unit available today. High static pressure from a high speed blower *removes free moisture in any material*—solid, granular, liquid or semi-liquid. Produces an absolute analysis. No calibration required. A real aid to quality and cost control in processing foodstuffs, fibres, chemicals, soaps and many other materials.

12 Page Catalog

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Anionics

(*From Page* 145)

States fatty alcohols for the manufacture of alkyl sulfates are derived almost entirely from animal and vegetable fats and oils. However, we can expect to see a trend toward petroleum sources for fatty alcohols. By June, 1961, one petroleum company plans to be producing in excess of fifty million pounds per year of saturated fatty alcohols from ethylene. These petrochemicals will be vigorous competitors of coconut oil derived fatty alcohols.

Anionics as Additives

Strong consumer appeal of manual dishwashing detergents depends on an ability to produce quickly and easily copious suds stable to soils. Ammonium nonylphenyl polyoxyethylene glycol sulfate, an old timer among anionic surfactants, is now being used in some household products to enhance the flash sudsing of alkylbenzene sulfonates. Being highly soluble in water the material also helps to solubilize dodecylbenzene sulfonate as well as improve its emulsifying ability and grease removal properties.

Synthetic surfactants are used in "combars" to disperse lime soaps as well as to improve lathering in hard water. One characteristic of their chemical structure common to surface active lime soap dispersants now being used in "combars" is the presence of a hydrophilic group such as amido, hydroxy, or ester group in close proximity to a sulfate or sulfonate group. Highly effective lime soap dispersants used in "combars" include sodium acyl isethionate, sodium acyl N-methyltaurate and sodium gamma-alkoxy-beta-hydroxy propane sulfonate. The large volume toilet soap bar market is a prime target for effective, low cost lime soap dispersants. It seems likely the new alpha sulfo fatty acids and esters will be evaluated thoroughly in this application.

At the present time several petroleum companies are offering samples of C_{10-20} alpha-olefins in experimental quantities. These alpha-olefins are straight-chain materials obtainable either from ethylene by polymerization or from paraffinic petroleum stocks by cracking. If developed commercially, they will provide the detergent industry with a valuable new raw material for anionic surfactants.

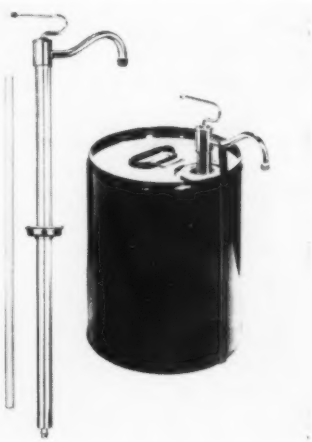
In summary, present day trends in anionic surfactants are toward their wider applications rather than the development of new types of materials. There is a continuing trend toward petroleum as a source of raw materials. The future for anionic surfactants is bright. Further growth of the synthetic detergent industry is our greatest assurance of their perpetual success.■

—★—

New Pail and Drum Pumps

A new line of drum and pail pumps was introduced recently by Multi-Meter Corp., Toledo, O. Model M855 Pump (left) is designed for use with 15, 30 and 55-gallon drums. Model M45 Pump (right) dispenses liquid products from five- and six-gallon pails. The pump is self-priming and dispenses four ounces per stroke. It is said to fill small containers without spilling and is adaptable to all size and type pail openings.

Both pumps are of steel construction, nickel-chrome plated.



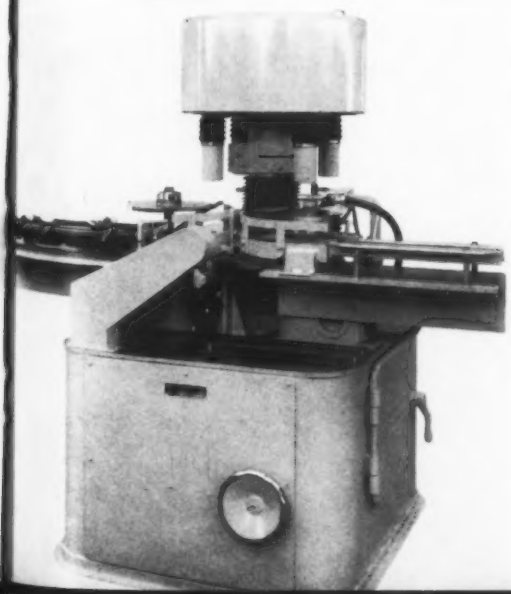
New Nalbach Equipment

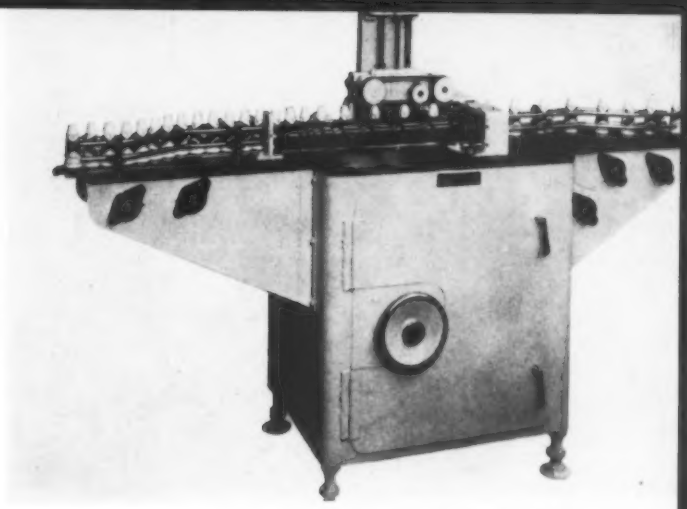
Two new packaging machinery developments have just been introduced by John R. Nalbach Engineering Co., 6139 W. Ogden Avenue, Chicago 50. A series of automatic rotary aerosol valve crimpers was announced. Designed to crimp cap and valve assemblies in the one inch diameter opening in metal aerosol containers, these machines come with non-vacuum and vacuum crimping heads. Two non-vacuum head models are available with speeds of 50 to 150 and 80 to 250 cans per minute, respectively. The two vacuum head models can handle 40 to 120 and 60 to 180 cans per minute, respectively.

A wide range of container sizes can be crimped on these machines. Change parts are required if cans of more than one diameter are to be crimped. For containers of different heights but of the same diameter no change parts are needed. Models of lower capacity can be converted into high capacity models by installation of necessary parts, which can be done in the field.

At the same time, Nalbach announced availability of two new models of code dating machines. These handle metal, glass, or plastic containers with flat or concave bottoms and may be used with "Porelon" inking rollers or ink wells, as desired. Units of this type are currently being used by S. C. Johnson & Son, Inc., in Racine, to code date one of their new shoe polish products, according to Nalbach.

Automatic rotary aerosol valve crimper by Nalbach Engineering Co., Chicago. Versatility and speed are claimed for these units. Data on special features are available in form of a data sheet.





New code dating machines by Nalbach Engineering handle metal, glass, or plastic containers.

—★—

Two New Fillers

U. S. Bottlers Machinery Co., Chicago, Ill., have just published two illustrated pamphlets describing a straight line vacuum filler (model B-49), and a siphon filler, capable of handling a variety of low viscosity products.

Model B-49 requires one operator, handles containers of from one to 14 inches in height. The unit fills eight to 12 one gallon containers per minute and 24 to 50 smaller containers per minute.

Straight line vacuum fillers are said to be satisfactory for the handling of practically all types of liquids, such as: liquid soaps, shampoos; liquid wax; polishes; insecticides.

The siphon unit is suitable for filling foamy materials and other products that do not permit agitation. The machine will fill from three to 30 containers per minute depending upon size of containers and siphon tubes used. It works on the principle of gravity with the product flowing from the glass lined supply tank to the containers.

For maximum operating speed, eight siphon filling tubes are used for all container sizes up to one quart, five filling tubes for half gallon and gallon containers.

For further information write to: U. S. Bottlers Machinery Co., 4015 North Rockwell St., Chicago 18, Ill.

—★—

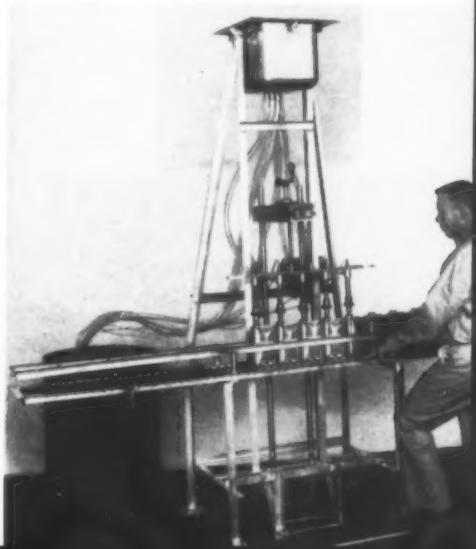
Direct from Drum Filler

A new direct from drum to container in-line filling machine has just been introduced by Laub Engineering Co., 244 North San Marino Avenue, San Gabriel, Calif. Capable of handling glass, round plastic bottles, and cans, the unit fills pint to gallon size containers.

The installation is suitable for sudsing and semiviscous fluids, most solvents, acids, bleaches, and caustics, according to Laub. Filling is accomplished by low pressure "Siphon-Sip" filling tube, said to eliminate dripping, can vacuum collapse and pressure stressing.

The filler is designed to drain dry, expediting changeover and cutting need for cleanup. Fumes are said to be at an absolute minimum, since air in and out of the drum is balanced. Visual overflow ensures that all cans are full.

New Laub filling machine



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FS-21

News...

PEOPLE · PRODUCTS · PLANTS

Janney P & G Sales Head

* * *

New Chemway Directors

* * *

Johnson Advances Sullivan

* * *

Record 1960 Soap Sales

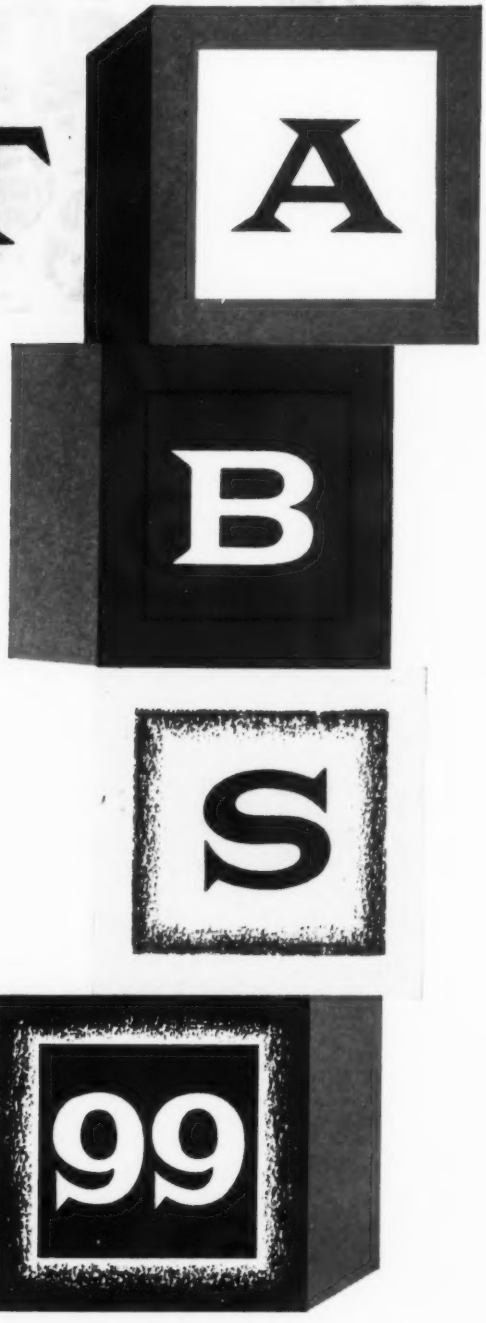
John M. Halsted, newly elected vice-president in charge of purchasing for Colgate-Palmolive Co., New York, has been with the firm since 1927. Most recently he was director of purchases within the corporate purchasing department. He succeeds J. H. Blakney.

dry neutralization

emulsion cleaners

liquid detergents

PILOT



The building block for all sulfonate detergents . . .

Pilot ABS-99, dodecyl benzene sulfonic concentrate, offers amazing flexibility for your detergent formulation: for direct neutralization of carbonate or bicarbonate mixtures to give dry compounds; can be mixed with a variety of bases and solvents for oil or water dispersable products; will form low sulfate liquids and pastes of light color for all-purpose liquid detergents; will form amine sulfonates which are directly soluble in oil, alcohol and non-aqueous media.

ABS-99 is made by Pilot's unique *Cold Processing* and gives 14% more active ingredient than ordinary 88% pure sulfonic concentrates. Detergent products can be made more efficient and manufactured at a lower processing cost by using highly concentrated Pilot ABS-99.

Because of its high purity, ABS-99 *may be kept in plain steel containers!*

Write now for technical information and sample.

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NEWS

Janney Heads P&G Sales

J. S. Janney, formerly sales manager of the case foods department, Procter & Gamble Co., Cincinnati, has been appointed general sales manager of the firm, it was announced recently. He assumes the sales responsibilities previously handled by T. G. Wood, vice-president in charge of sales and a director of the company since 1943. Mr. Wood remains a vice-president and director, reporting to president Howard Morgens on special company projects.

J. S. Janney

T. G. Wood

Mr. Janney joined the company in 1931, as a salesman. He held a number of district and division sales managerships before being named case food sales manager.

Mr. Wood joined P & G's sales force in 1919. He became western division sales manager in 1928 and was named general sales manager in 1938. A native of Berea, Ky., he attended the University of Kentucky and Kansas State University.

Johnson Names Manager

Frank D. Sullivan has just been named southwest district sales manager for the service products division of S. C. Johnson & Son, Inc., Racine, Wis. Headquartered in Dallas, Tex., he will direct the sales of Johnson's maintenance, metalworking and industrial coatings products in Texas, Louisiana, Mississippi and parts of Tennessee, Arkansas, New Mexico and Arizona.

Mr. Sullivan joined the company in 1955 as a maintenance products salesman in the Los Angeles area. He succeeds William W. Cooper, who is entering the sanitary supply business in the Dallas area. Mr. Cooper will continue his association with the firm as a maintenance products distributor.

★

New Chemway Directors

Three prominent businessmen recently elected to the board, Chemway Corp., Wayne, N. J., are Robert W. Dowling, president—City Investing Co., New York; Walter Hoving, chairman—Tiffany & Co.; William L. Russell, president—Dunbar Laboratories, a division of Chemway. The action was taken at a regular meeting of the board.

Chemway, listed on the New York Stock Exchange, manufactures "Lady Esther" cosmetics and a wide variety of ethical and proprietary drugs and toiletries.

Drackett Earnings Off

Drackett Co., Cincinnati, reported recently net profits in the first fiscal quarter were $630,022 or 68 cents a share on the 921,218 shares outstanding Dec. 31, 1960, as compared with $599,501 or 61 cents a share on the 901,247 shares outstanding a year earlier. A common quarterly dividend of 40 cents a share was declared payable Feb. 20, 1961 to stockholders of record Feb. 10th.

★

Halsted C-P Vice-Pres.

John M. Halsted has been elected vice-president in charge of purchasing, Colgate-Palmolive Co., New York, it was announced recently by George H. Lesch, president. Mr. Halsted succeeds John H. Blakney, who retired Feb. 1, after 47 years with the firm.

Mr. Halsted joined the company in 1927, and has taken part in every phase of its purchasing activities. In 1943, he was named assistant to the director of purchases, with supervisory responsibility for the purchasing of fats and oils, chemicals and other raw materials. He became director of purchases within the corporate purchasing department in 1958, to coordinate the purchasing activities of the operating divisions.

J. H. Blakney

PHILADELPHIA QUARTZ COMPANY
PQ SODIUM SILICATES • KASIL POTASSIUM SILICATES • METSO SILICATE ALKALIS
BASIC CHEMICALS FOR FORMULATING DETERGENTS AND CLEANERS
APPROXIMATE COMPOSITIONS AND PROPERTIES OF SOME POPULAR PQ SILICATES
PQ SOLUBLE SILICATES FOR DETERGENT FORMULATIONS
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METSO SILICATE DETERGENTS
METSO ANHYDROUS
METSO 99
METSO GRANULAR

Send for this convenient reference file . . . data about soluble silicates in liquid, spray dried, dry-mixed detergents and compounds.

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manufacturers of

SOLUBLE SILICATES

130TH ANNIVERSARY 1831-1961

Associates: *Philadelphia Quartz Co. of Calif.; Berkeley & Los Angeles, Calif.; Tacoma, Wash.; National Silicates Ltd., Toronto & Valleyfield, Can.*

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9 PLANTS • DISTRIBUTORS IN OVER 85 CITIES IN THE U.S.A. & CANADA

Ralph Hart to Resign

Ralph A. Hart, executive vice-president and director of Colgate-Palmolive Co., New York, re-

Ralph A. Hart

cently announced his intention to resign from the company in April. No reason has been given for his resignation and no comment was offered by Mr. Hart regarding his future plans.

Mr. Hart joined Colgate in 1932. He started as a salesman for the firm's Canadian subsidiary and later became vice-president of the Canadian company. From 1938 to 1942 he served as managing director of Colgate's subsidiary in India and from 1948 to 1951 he held a similar post in Australia. In 1951 Mr. Hart was elected vice-president of Colgate-Palmolive International in charge of sales and advertising for the United Kingdom and continental Europe. He became president of Colgate-Palmolive International and a vice-president of the parent company in 1955. He was elected a director of the company in 1956.

—★—

P&G Chilean Subsidiary

Procter & Gamble Co., Cincinnati, announced recently it had formed a new overseas company in Chile, under the name Procter & Gamble (Chile), S.A.I. The new subsidiary has entered into an arrangement with Perlina, S.A.I., Vina del Mar, Chile, for the manufacture and sale of soaps and synthetic detergents in the country. The arrangement involves continuation of the manufacture and marketing of Perlina's Chilean products, together with the introduction of selected Procter & Gamble international brands.

—★—

New Johnson Overseas Units

S. C. Johnson & Son, Inc., Racine, Wis., announced recently the establishment of manufacturing and marketing companies in South Africa and Sweden. The firm has also formed a company in New Zealand, bringing its total of foreign organizations to 16.

—★—

Shulton Names Ward

David M. Ward recently was appointed assistant national sales manager, toiletries division, Shulton, Inc., Clifton, N. J. Mr. Ward will be responsible for further development of wholesaler, military and chain drug activities, in addition to field sales training. He will also act as liaison between the toiletries and home products divisions.

Mr. Ward joined Shulton in 1954 as a sales representative. He was appointed special assistant to the general sales manager in 1958. Prior to joining the firm, he was a salesman for J. B. Williams Co., Glastonbury, Conn.

Cowles Forms New Division

Cowles Chemical Co., Cleveland, last month formed a new southeast sales division of its laun-

W. M. Arnold

dry products department. The new division encompasses the states of Virginia, North and South Carolina, Georgia, Florida and Alabama, plus parts of Tennessee, Mississippi and Arkansas.

The newly formed division will be under the direction of W. M. Arnold, with headquarters at Atlanta. Mr. Arnold, who joined the firm in 1948, previously represented Cowles in southern New England for the past 12 years.

New toiletries division home office staff, Shulton, Inc., Clifton, N. J., left to right: John Hutchens, sales manager—wholesalers; Clyde Brown, national sales manager; William Hayes, sales manager—military; David Ward, newly appointed assistant national sales manager.

Another Schimmel aerosol perfume

Bouquet for Aerosol
S77:38 . . . $5.75 lb.

A modern well rounded perfume blend with floral overtones. Very versatile . . .

Excellent in room sprays and a variety of other aerosol products.

Write on your firm's letterhead for a sample.

schimmel & co., inc.
newburgh, new york

DuBois Appoints Tooper

Edward B. Tooper has been appointed assistant vice-president assigned to research, engineering,

Edward B. Tooper

and production at DuBois Chemicals, Inc., Cincinnati, it was announced recently by Louis Lerner, president. Dr. Tooper has had 13 years experience in the fields of industrial chemistry, including detergents. Since 1958 he has served as assistant to the president of Diversey Corp., Chicago, responsible for research and development. Previous to this position, he was associated with Nalco Chemical Corp., Chicago, in charge of special applications and then as director of exploratory research.

He will be directly associated with Samuel J. Miller, vice-president, who is responsible for research, development, production and all technical areas.

DuBois also announced a new motion picture concerned with correct machine dishwashing procedures. This 16mm sound and color film entitled "Feel Free," has a running time of 20 minutes. It is designed both as an educational aid for use at food service operations, and as a public service movie to create interest in the subject of correct machine dishwashing operation.

—★—

Shulton Names Wilson

John T. Wilson has been appointed southwest regional sales manager, Shulton, Inc., Clifton, N. J., it was announced recently by Richard N. Parks, vice-president, sales. Mr. Wilson joined the general sales department in 1946. He has served as a sales representative since 1953, most recently in the Philadelphia area.

Mr. Parks also announced that the southwest regional sales office, previously headquartered in Dallas, will now be located at Shulton's new 111,000 square foot manufacturing plant and distribution center in Belz Industrial Park, Memphis, Tenn.

—★—

Olsen Lehn & Fink Manager

D. J. Olsen has been named general manager, manufacturing, Lehn & Fink Products Corp., New York, it was announced recently by Walter N. Plaut, president. He replaces Edmund J. Dempsey who has retired.

Mr. Olsen is responsible for the overall direction of manufacturing, purchasing and engineering. He will direct manufacturing activities at Bloomfield, N. J., Lincoln, Ill., and Denver, Col. In addition he is responsible for warehousing activities.

He joined Lehn & Fink in January, 1959, as manager of production control, a department he organized and put into operation. He was advanced to assistant general manager of manufacturing in December, 1960. Mr. Olsen was previously associated with Merck & Co., Rahway, N. J., with assignments in research planning and evaluation.

D. J. Olsen

Fite P&G Vice-President

Dean P. Fite, with the firm since 1937, was recently elected vice-president and comptroller of

Dean P. Fite

Procter & Gamble Co., Cincinnati. Mr. Fite, comptroller since October 1958, continues to be responsible for the work of P&G's legal division. He was named manager of the cost department in 1952, division accountant in 1954, chief accountant in 1955, and associate comptroller in 1957.

—★—

Schenectady Distributor

Appointment of Edward J. Lewis Co., Chicago, as distributors for the complete line of "Schenectady Resins," used in the production of waxes and emulsion polishes, was announced recently by Schenectady (N. Y.) Varnish Co. The Lewis Co. is responsible for the sale of all "Schenectady Resins" to the wax and emulsion polish industries within a 200 mile radius of Chicago.

—★—

C-P 25-Year Club Elects

At a recent meeting of the 25-Year Club of the research and development laboratories, Jersey City, N. J., of Colgate-Palmolive Co., New York, Robert F. Heald and A. L. Schulerud, were chosen president and secretary, respectively. Dr. Heald is in charge of pilot plants and Mr. Schulerud is process section head for soaps and toiletries. Conrad Jakob, chemist, was named treasurer.

30 alkalies to choose from

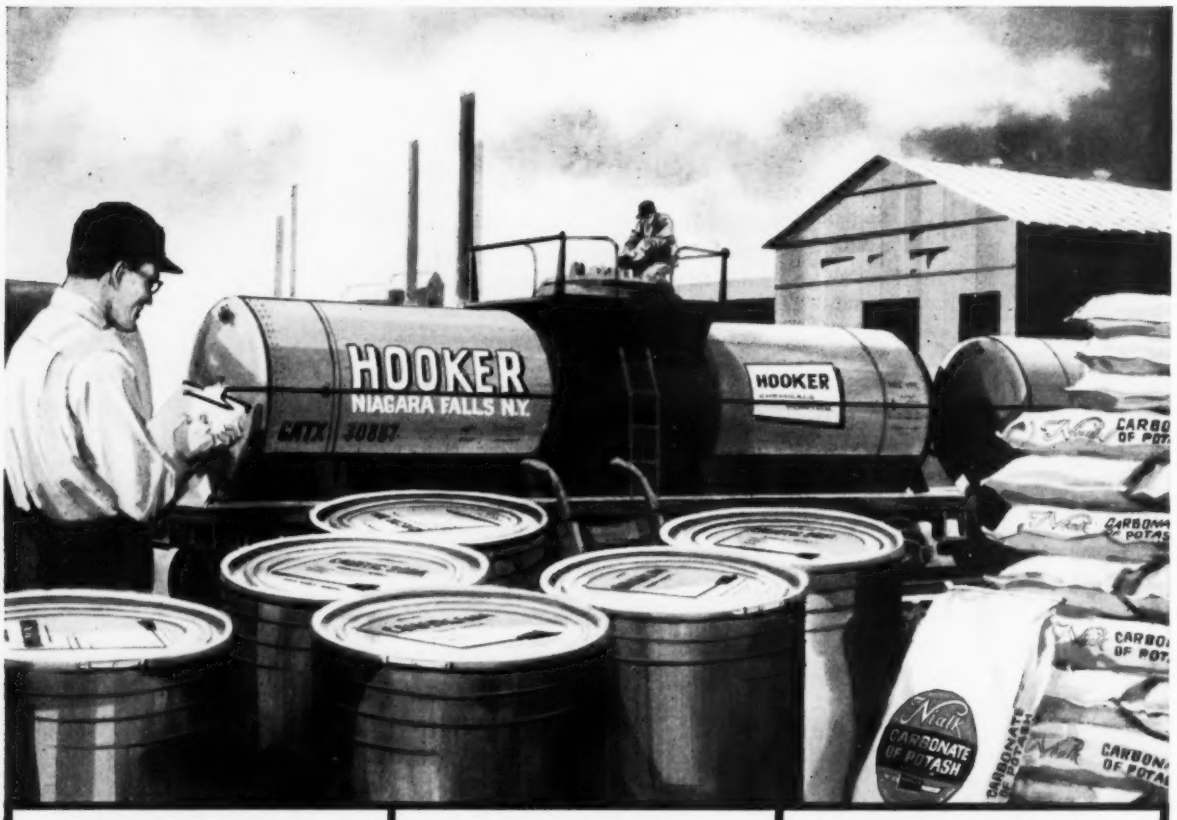
This kind of variety is more than sheer spice. It represents higher profits, because you can purchase almost any form and grade of alkali you need. It follows that processing and repackaging costs go down.

You save on purchasing costs too, because two or more of these consistently uniform alkalies can be ordered *together* in mixed carloads or mixed truckloads. One order, one billing, one responsibility—cuts buying and bookkeeping red tape.

NEW CAUSTIC SODA DRUMS • You don't need a tool kit to open Hooker's new flake caustic soda drums. They flip open, empty easier . . . because the drums have *full* open heads—21 inches across.

The wider mouth also makes the drums more adaptable to re-use.

The next time you're considering alkali requirements, call in our representative who is trained in the economics of these alkalies. Some of his ideas can work to your advantage.



HOOKER CAUSTIC SODA

Liquid 50%
Rayon grade liquid 50%
Liquid 73%
Rayon grade liquid 73%
Solid
Regular Flake
Crystal Flake
Fine Flake
Phosphated
Special Alkali

Liquid forms available in tank cars and tank trucks, dry forms in drums.

CAUSTIC POTASH

Standard Grades
Liquid 45-52%
Solid 90% and 85%
Flake 90% and 85%
Granular, Walnut, Broken, Powder and Crushed—all 90%

Low-Chloride Grades
Liquid 45-52%
Solid 85%
Flake 85%

Liquid forms available in tank cars and tank trucks, dry forms in drums.

CARBONATE OF POTASH

Hydrate, Regular 83.5-84.0%
Calcined, Regular 99.2-99.6%
Calcined, Regular Powder 99%
Fine, Medium and Coarse
Calcined, Powder 91-94%
Liquid 47-52%

Liquid form available in tank cars and tank trucks, dry forms in wooden barrels, fiber kegs, and paper bags.

HOOKER CHEMICAL CORPORATION

103 UNION STREET, NIAGARA FALLS, NEW YORK

HOOKER CHEMICALS PLASTICS

Sales offices: Buffalo, Chicago, Detroit, Los Angeles, New York, Niagara Falls, Philadelphia, Tacoma, Worcester, Mass. *In Canada:* Hooker Chemicals Limited, North Vancouver, B.C.

Colgate-Palmolive Reorganizes Research

COLGATE-Palmolive Co., New York, recently realigned its research department to keep pace with the expanded scope of scientific activities to be carried out in its new research center now being constructed adjacent to Rutgers University in New Brunswick, N. J. A centralized research and development department has been formed headed by Dr. John R. Brown, Jr., vice-president for research and development.

J. R. Brown, Jr.

Under the new plan, the former household products division and toilet articles division product research departments have been consolidated with the former corporate research and development department, which handled fundamental, long-range studies. Technical activities have been divided into two areas — biological and chemical—under the supervision of Dr. Joseph H. Brant, director of research, biological products, with Dr. L. D. Apperson serving as associate director—oral products; and Dr. Richard B. Wearn, director of chemical research—chemical products.

It was also announced that R. T. LaPier had been appointed to the newly-created position of director of administration, planning and control for the entire department.

Greer Texize Vice-Pres.

Tommy D. Greer, manager of the industrial products division, Texize Chemicals, Inc., Greenville, S. C., recently was elected a vice-president of the company. He joined Texize in 1951, as a salesman with the consumer products division. In 1957 he was named manager of the then newly formed industrial products division. Beginning with only four products and two salesmen, the division has grown to more than 40 products, and a sales force that covers a nine state area.

It was also announced that B. J. Dodson has been appointed general manager of the consumer products division. Mr. Dodson, with Texize since 1952, was formerly assistant general manager of the division. Prior to joining the company he was Greenville, S. C. district manager for Scott Paper Co., Chester, Pa.

P&G Leads TV Advertisers

In a report recently issued by the Television Bureau of Advertising, Inc., New York, of estimated expenditures for October, 1960, by the top 15 network company advertisers, Procter & Gamble Co., Cincinnati, led the list with $3,602,798. Included in the top seven were: American Home Products Corp., New York, with $2,695,535; Lever Brothers Co., New York, $2,143,068; Gillette Co., Boston, $1,736,693; and Colgate-Palmolive Co., New York, $1,621,495. Number 12 on the list was E. I. duPont de Nemours & Co., Wilmington, Del., with $1,017,677. Also included in the report were the estimated expenditures of the top 15 network brand advertisers for October, with "Prestone Anti-Freeze" fifth, at $579,848. In the product classification category, for the same month, soaps, cleansers and polishes were listed at $6,224,557, and for the period from Jan.-Oct. 1960, the total amount was $58,003,324.

Tommy D. Greer

B. J. Dodson

—★—

MIT Surfactant Course

The chemical engineering department of Massachusetts Institute of Technology, Cambridge, Mass., will hold a two weeks summer course, June 26-July 7, in applied surface chemistry entitled, "Fundamentals and Applications of Selected Surface Phenomena." The course will cover detergency, filtration and drying, rheology of suspensions, surface effects in fuel cell technology, and heterogeneous catalysis. Discussions will be held on the more basic topics of flow through porous media, flocculation and deflocculation, absolute reaction rate theory, physical and chemical adsorption, and electronic structure of catalysts.

Inquiries about the course should be directed to the Office of Summer Session at M.I.T.

keep 'em coming back with CARBOWAX polyglycols

She'll come back for more when your product is dependable—when her second and third purchase gives the same satisfaction as the first.

And with dependable CARBOWAX polyethylene glycols as the medium for your ointments, lotions, balms, and creams, you know that your product will have that same consistency batch after batch.

To give you this complete reproducibility of properties, CARBIDE carefully controls the synthesis of CARBOWAX polyethylene glycols. *This lets you eliminate the costly and time consuming procedures of juggling the ingredients in your formulation.*

Let CARBOWAX polyethylene glycols give you a more dependable product. They are water-soluble unctuous polymers, available in a wide range of viscosities—liquid through cream, to wax-like solid. Talk with a CARBIDE Technical Representative or write for a copy of the "CARBOWAX Polyethylene Glycols" booklet —Union Carbide Chemicals Company, Division of Union Carbide Corporation, Department J, 270 Park Avenue, New York 17, New York.

CARBOWAX and UNION CARBIDE are registered trade marks.

UNION CARBIDE CHEMICALS COMPANY

UNION CARBIDE

Glauberman Joins Malco

Lionel Glauberman has joined Malco Products, Inc., Akron, O. as head of the distributor sales

Lionel Glauberman

program for automotive and maintenance products, it was announced recently. Mr. Glauberman, formerly division manager of Assembly Products, Inc., Chesterland, O., will also develop a distributor assistance program at Malco. Presently the firm distributes its automotive specialties throughout the United States and has detergent sales in excess of five million pounds a year; with sales confined to a five state area.

—★—

DuBois Appoints Officers

Three new officers have been appointed by DuBois Chemicals, Inc., Cincinnati, it was announced recently by Louis Lerner, president. George H. Scheper has been named financial vice-president; Edward R. Schoener, assistant to the president; and Thomas E. Westerfield, treasurer and assistant secretary.

Mr. Scheper was formerly treasurer. He joined DuBois in 1952 and has served as controller, assistant treasurer and secretary-treasurer.

Mr. Schoener was formerly assistant secretary and administrative assistant. In addition to his new position, he will continue to serve as assistant secretary. He joined DuBois in 1938 as a general sales correspondent, and has served in sales promotion, office management and staff administration. Formerly office manager of DuBois, Mr. Westerfield joined the firm in 1951 in the accounts receivable department and has served in various credit, accounting and office management positions.

It was also announced that Robert Ossege, formerly a cost accountant, has been named office manager.

—★—

Cuts Solvent Prices

E. I. du Pont de Nemours & Co., Wilmington, Del., announced recently, price cuts of eight to 12 per cent for trichlorethylene solvent.

New delivered prices are: truckload and carload quantities of drums, 12½ cents per pound; tank wagons and tank cars, 11¾ and 11¼ cents respectively; less than truckload quantities, 14 cents, except west of the Rockies where the price is 14½ cents a pound.

—★—

Chipman Appoints Lyness

Hampton A. Lyness has been appointed a district sales manager for Chipman Chemical Co., Bound Brook, N. J., it was announced recently by Duncan McCallum, general manager of the firm's Chicago office.

Mr. Lyness, formerly assistant district manager in the company's Chicago division, will serve Nebraska, Kansas, Iowa, and Missouri; with headquarters in Kansas City. Prior to joining Chipman Chemical in 1957, he was associated with Cities Service Oil Co.

Hampton A. Lyness

Baiter Lever Vice-Pres.

Richard E. Baiter has been elected marketing vice-president of the "Pepsodent" division of Lever

Richard E. Baiter

Brothers Co., New York, it was announced recently by Milton C. Mumford, president. He succeeds T. E. Hicks, who continues as a vice-president, returning to corporate advertising staff duties.

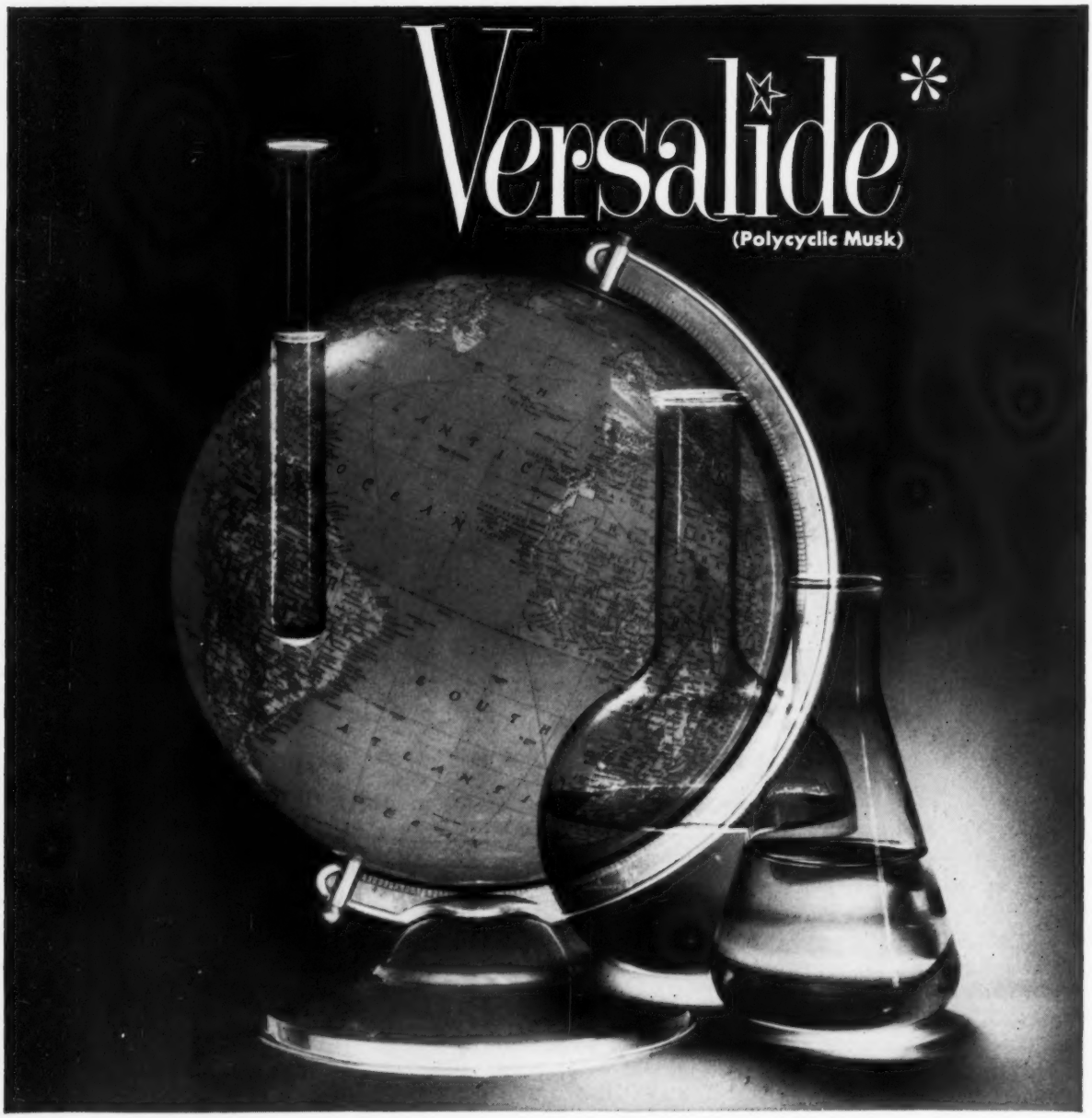
Previously Mr. Baiter was merchandising manager of the "Pepsodent" division and earlier was merchandising manager for Lever's toilet soaps. Prior to joining the firm in 1956, Mr. Baiter had 20 years' experience in the grocery business.

—★—

Thorkilsen C-P Manager

Harold N. Thorkilsen has been appointed manager—research coordination for the toilet articles division, Colgate-Palmolive Co., it was announced recently by C. Guy Grace, vice-president and general manager of the division.

Mr. Thorkilsen, formerly manager of the Denver toilet articles sales district, joined Colgate-Palmolive in 1946. He served for two years as a chemical engineer and was then transferred to the Jersey City plant where he held production supervisory positions. In 1956, Mr. Thorkilsen became a salesman in the Chicago toilet articles sales district, and within a year was appointed a food store supervisor. In 1959 he was named Denver district manager.



an international success!

Within a year of its introduction, *Versalide*, Givaudan's outstanding new polycyclic musk, has met with international acceptance! Perfumers throughout the world of fragrance have recognized in its versatility and unique combination of advantages a whole new field of opportunity for creative perfumery.

Versalide lends to a perfume all the enhancement, sweetness, strength, fixation and blending properties expected only from the macrocyclic musks, and yet at a fraction of their cost.

A pure chemical body, not a mixture, *Versalide* is economical—stable to light, heat, air, alkali; and does not discolor soap. And its versatility is practically unlimited!

We will gladly send you a sample and more detailed information.

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GIVAUDAN

GIVAUDAN-DELAWANNA, INC.
321 West 44th Street, New York 36, N. Y.

Ultra Chemical Changes

Ultra Chemical Works, Inc., Paterson, N. J., subsidiary of Witco Chemical Co., New York, has announced recent changes in the organization and responsibilities of its marketing staff. In the industrial chemicals division, an eastern sales district, extending from Maine to Florida, has been formed. Robert E. Ritter is district sales manager. Mr. Ritter, previously product sales manager for Ultra's industrial chemicals line, continues to be headquartered at Paterson, N.J.

The midwestern sales district, managed by Paul J. Ketrick, has been expanded to include 17 states in the area bounded by Ohio, Texas and Minnesota.

Two new sales representatives, H. Reid Halahan and Edward A. Bell, have joined the industrial chemicals marketing staff. Mr. Halahan, formerly with Nopco Chemical Co., Newark, N.J., has been assigned to the eastern district, and reports to Mr. Ritter. Mr. Bell, previously with McKesson and Robbins, Inc., New York, has been assigned to the midwestern sales district, and reports to Mr. Ketrick.

In the packaged detergents division, Harold E. Abbott has been named sales manager and Raymond K. Gilmore, assistant sales manager. Previously product sales manager for packaged detergents, Mr. Abbott is responsible for the sales and distribution of all private-label packaged detergents, both liquid and dry. He will be assisted by Mr. Gilmore, who was formerly a service sales representative. Their offices will be at Paterson, N.J.

—★—

Coolant Lifetime Extended

Dow Chemical Co., Midland, Mich., announced recently it has extended the lifetime of "Dowgard Full-Fill" coolant up to a period of two years, rather than only one year as initially stated. The statement of assurance for longer life is said to be based on extensive engine tests, fleet tests and field consumer experience.

"Dowgard Full-Fill" coolant contains diethylene glycol, ethylene glycol, a balanced inhibitor system and deionized water, said to give the user protection against engine damage resulting from overheating, freezing, rust, and corrosion or pitting of the cooling system metals.

—★—

C-P Free Offer

Colgate-Palmolive Co., New York, is making available a free, 5½ inch tall trial size of liquid "Vel" detergent, in a pink plastic bottle, with each purchase of two large-size cans of "Ajax" cleanser. The offer is packaged in a clusterpak, manufactured by Mead Packaging Corp., Atlanta.

Lehn & Fink Names Kirk

Roger M. Kirk, Jr., has been named manager of the Lehn & Fink division of Lehn & Fink Products Corp., New York, it was announced recently by Walter N. Plaut, corporation president.

Roger M. Kirk, Jr.

In his new capacity, Mr. Kirk is responsible for the direction of the division's overall administration, including sales, merchandising, advertising and promotion. He joined Lehn & Fink in December, 1959 as sales manager of the division.

Mr. Kirk started his career as a salesman with Standard Brands, Inc., New York, and rose to assistant to the vice-president and sales manager of the grocery division. He was formerly associated with Cook Chemical Co., Kansas City, Mo., as vice-president of sales and advertising.

Raymond Gilmore

Robert Ritter

Harold Abbott

Whether your product cleans crystal or cars

Whether it's soap gentle enough for soft, feminine hands and fine crystal...or a rough, tough cleaner for grease-cutting, scrub-brush jobs...look to Victor for phosphates.

Victor sodium tripolyphosphate, for example, now answers your rate-of-solution requirements with a complete range of densities. Victor tripoly's *new low density* (35 lb. cu/ft.) plays right into your hands by adding *bulk* to your product and *profits* to your pocketbook.

Soapers know, too, that Victor delivers "top quality" sodium and potassium phosphates in money-saving bulk shipments or economical mixed truckloads. So whichever you prefer, you'll find...as many others already have...

IT *Pays*
TO SEE VICTOR FOR PHOSPHATES

VICTOR *Chemicals*
DIVISION OF STAUFFER CHEMICAL COMPANY
155 N. Wacker Drive, Chicago 6

Kodak Executive Shifts

Eastman Kodak Co., Rochester, N. Y., recently appointed James C. White chairman of the firm's Tennessee Eastman and Texas Eastman divisions. Louis K. Eilers was named president of both divisions, succeeding Mr. White. Also it was announced that Harry D. McNeeley was named executive vice-president of Texas Eastman, in addition to his present position as executive vice-president of Tennessee Eastman.

Mr. White joined Tennessee Eastman in 1920 and had been president of the division since 1945. He was also president of Texas Eastman and remains as chairman of Eastman Chemical Products, Inc., Kingsport, Tenn. Mr. Eilers joined Kodak in 1934 as a chemist in Rochester. He was elected a vice-president and an assistant general manager of the company in 1956, a position he held until he transferred to Tennessee Eastman in 1959, as first vice-president. Mr. McNeeley, whose first position with Tennessee Eastman was as a development chemist in 1935, has been executive vice-president of that division since 1959.

—★—

National Advances Two

Cecil J. Little has just been appointed southeast region manager of National Laboratories, Inc., Toledo, O. Mr. Little started with the firm as zone manager in Richmond, Va., and has served as division and field manager in that area. Headquartered in Charlotte, N. C., he will direct more than 50 sales representatives.

It was also announced that Morris C. Besly, division manager, Dallas-Fort Worth, has been advanced to staff instructor in the education department. He will conduct training sessions for National's 250 representatives in 49 states.

Morris C. Besly

Cecil J. Little

—★—

ISM Regional Conference

The Institute of Sanitation Management has scheduled its 1961 western regional conference for Pasadena, Calif., April 20-21, at the Huntington-Sheraton Hotel. The meeting will feature six formal sessions on public buildings, hospitals and institutions, establishing cleaning and sanitation standards, flour mills and bakeries, food processing equipment and design, and laws and regulations. National officers who will speak at the meeting include ISM president Raymond Q. Duke, Detroit Edison Co., Detroit; vice-president George B. Wagner, Pillsbury Mills, Minneapolis; and Gerard J. Riley, executive secretary, New York.

Formation of a new Indiana chapter has been announced by ISM. The local chapter, with headquarters in Indianapolis, is the organization's 15th.

It was also reported that an all-day sanitation seminar held Jan. 26, by the New York chapter of the ISM, was attended by 250 members and guests.

Mennen Appoints Two

Isidore Bronfein was recently appointed senior research chemist, Mennen Co., Morristown, N. J.

Isidore Bronfein

He was formerly engaged in industrial chemistry and spent 12 years with Roure-Dupont, Inc., New York. Since 1952, Mr. Bronfein has been more directly concerned with cosmetic and toiletry formulation as chief chemist for two contract manufacturers in the toiletries and cosmetic industry. He is a member of the Society of Cosmetic Chemists, New York.

It was also announced that Thomas J. Sullivan has been appointed a research chemist in Mennen's research and development laboratories. Formerly, he had spent three years with Fluid Chemical Co., Newark, N. J., as a product development chemist.

—★—

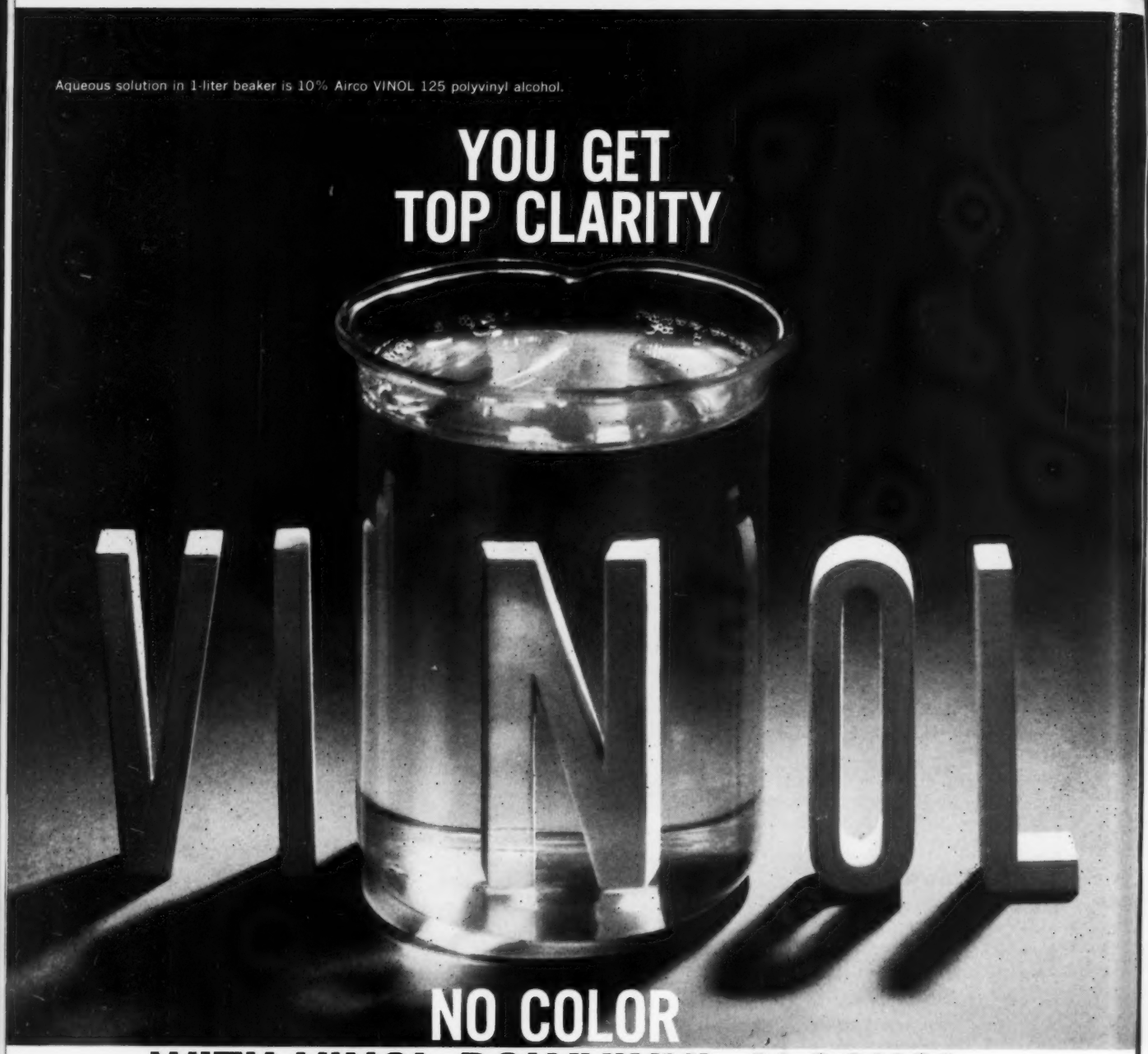
Melnicoff on Committee

David C. Melnicoff, vice-president in charge of administration, Fels & Co., Philadelphia, has recently been named a member of the planning committee for the January 1962, Forecasting Conference of the Chamber of Commerce of Greater Philadelphia.

—★—

New Hand Cleaner

R. L. Flett Co., Cincinnati, is using a mail sample campaign to introduce "Off," its new activated hand cleaner. A small package of the product is offered for trial, with larger samples available on request. Flett sells a dispenser to be used with "Off."



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These properties are characteristic of PVA produced by Airco's exclusive continuous manufacturing process—including a super-hydrolyzed VINOL 125, as well as fully-hydrolyzed and non-gelling grades. Another key advantage of VINOL PVA: better water resistance than competitive PVA resins.

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AIRCO — Vinyl Monomers, Acetylenic Chemicals

NATIONAL CARBIDE — Calcium Carbide, Pipeline Acetylene

COLTON — Vinyl Resins, Copolymers

ADM Reorganizes Group

A new customer-oriented organization for the chemical group of Archer-Daniels-Midland Co., Minneapolis, was announced recently by W. G. Andrews, executive vice-president of the group. The new plan establishes group marketing and production managers, five department managers and a field sales administrator.

Dr. George K. Nelson, formerly manager of the industrial chemicals division, has been named marketing manager for the group, and J. C. Burkholder, formerly resin division manager, was appointed group production manager.

The product departments and their managers, who report to Mr. Nelson are: Resins, W. C. Mueller, formerly sales manager of the resin division; plastics, H. B. Finch, formerly manager of the plastics division; industrial chemicals, J. H. Kane, formerly sales manager of the industrial chemicals division; plasticizers, W. A. Jarvey, and nitrogen chemicals, R. G. Freese. Mr. Jarvey and Mr. Freese were formerly product managers within the industrial chemicals division for plasticizers and nitrogens respectively.

Hall Dillon has been named field sales administrator for the chemical group, and will report to Mr. Nelson. Mr. Dillon was formerly sales coordinator for the resin division.

—★—

Gillette Ltd. Names Two

Two executive changes were announced at a recent meeting of the board of directors of Gillette of Canada Limited, Montreal.

Joseph I. Stampleman, president and managing director, was elected chairman of the board, and Richard S. Reuland, executive vice-president, was named to succeed him.

Mr. Stampleman served as president and managing director of Gillette's Canadian subsidiary for 22 years. He started with the company in 1919, working first in sales and advertising. He advanced to positions of executive level until 1938, when he became president of the firm.

Mr. Reuland joined Gillette in 1940. He served in a wide range of executive capacities with the company both in the United States and Canada during the succeeding 16 years. In 1956 he was elected a vice-president of Gillette of Canada and in 1957 became executive vice-president.

—★—

IBI Opens Plants

Industrial Biochemicals, Inc., recently announced it has established offices, research and production facilities in the Edison (N. J.) Industrial Center. The firm will introduce a series of specialty biochemical products utilizing fermentation techniques.

The company's pilot plant will also be used for custom manufacture of fermentation chemicals, and its technical staff will engage in contract development of process and equipment design for the fermentation industry.

—★—

Bassiri Joins Aromax

Dr. T. Bassiri, formerly a staff perfumer with Fleuroma, Inc., Long Island City, N. Y., has recently joined Aromax Corp., Richmond Hill, N. Y. Dr. Bassiri, a native of France, was associated with Descollonges, perfume materials house in Lyons, before coming to this country in May, 1960.

T. Bassiri

Chesebrough Names Orr

Frank H. Orr, executive assistant to the marketing vice-president since August, 1959, has been

Frank H. Orr

named assistant to the president of Chesebrough-Pond's Inc., New York, it was announced recently by Jerome A. Straka, president.

In addition to handling special assignments for Mr. Straka, Mr. Orr will act as administrative coordinator for the brand managers, the professional products manager, and the marketing research manager.

In 1937, Mr. Orr joined Lamont-Corliss & Co., then sales agents for Pond's Extract Company, as territory manager, in Atlanta, Ga. He has held several executive sales positions with Pond's and with Chesebrough-Pond's, Inc., which resulted from Pond's merger with Chesebrough Manufacturing Co., in 1955. Mr. Orr was named general sales manager of the corporation on July 1, 1955.

—★—

Stauffer Appoints Bilski

Raymond J. Bilski was recently appointed Michigan sales representative, industrial chemicals division, Stauffer Chemical Co., New York. He will be headquartered in Detroit.

For the past year, Mr. Bilski has been with Stauffer's industrial chemicals sales department in Chicago. He was formerly chief chemist of the company's Hammond, Ind., plant.

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Blockson Gulf River barge fleet unloading raw materials at dockside conveyor system.

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Annual sales meeting of the Allen B. Wrisley Co. was held recently, at the Executive House, Chicago. Paul W. Skillman, sales manager, presided at the meeting, theme of which was, "Plan, Promote, and Profit."

Perfumers' Symposium Set

The American Society of Perfumers will hold its seventh open annual symposium on Thursday, April 13, 2:00 P.M., at the Essex House, New York, it was announced recently by Dr. Oliver Marton of Shulton, Inc., publicity chairman of the group.

The meeting's official theme is "Experimental Findings on Odor and Olfaction." Papers will be presented by Trygge Engen of Brown University, D. Tucker of Florida State University, and M. G. Beets of International Flavors & Fragrances, Inc., Hilversum, Holland.

The technical session will be followed by a cocktail hour and buffet supper. For reservations communicate with Edwin D. Morgan Jr., Lever Brothers Co., Research Center, 45 River Road, Edgewater, N. J.

—★—

HPC Continues Expansion

Hercules Powder Co., Wilmington, announced recently it was starting construction of a second multimillion-dollar polyolefins unit at Lake Charles, La., doubling the size of the plant scheduled to begin commercial production before the end of February.

The planned construction project carries into completion a facility designed for ultimate capacity in excess of 100 million pounds a year. Technological improvements have increased the capacity of the initial unit to over 60 million pounds a year.

The expansion project is designed to bring Hercules' total annual capacity up to 200 million pounds. This will consist of about 80 million pounds a year at Parlin, N. J., and about 120 million pounds a year at the new Lake Charles plant.

"Hi-fax," with a wide range of plastics applications, is used for blown bottles. "Pro-fax," lightweight commercial plastic, is used for injection-molded articles.

—★—

Carbide Reassigns Seven

Union Carbide Chemicals Co., a division of Union Carbide Corp., New York, recently announced new sales assignments for seven technical representatives.

William P. Emerson, previously in the Atlanta district, has been transferred to Dallas. William R. Britton assumes responsibilities in the Delaware Valley district. Nicholas J. Hill, previously assigned to the St. Louis district sales office, has been transferred to the Pittsburgh district. Donald W. Urban assumes new responsibilities in the Atlanta district.

After completing an extensive training program, the following men have been assigned to district sales offices: Ronald E. Feathers to the Atlanta office, Erford E. Porter to the Delaware valley office, and Dale L. Thornborough to the St. Louis office.

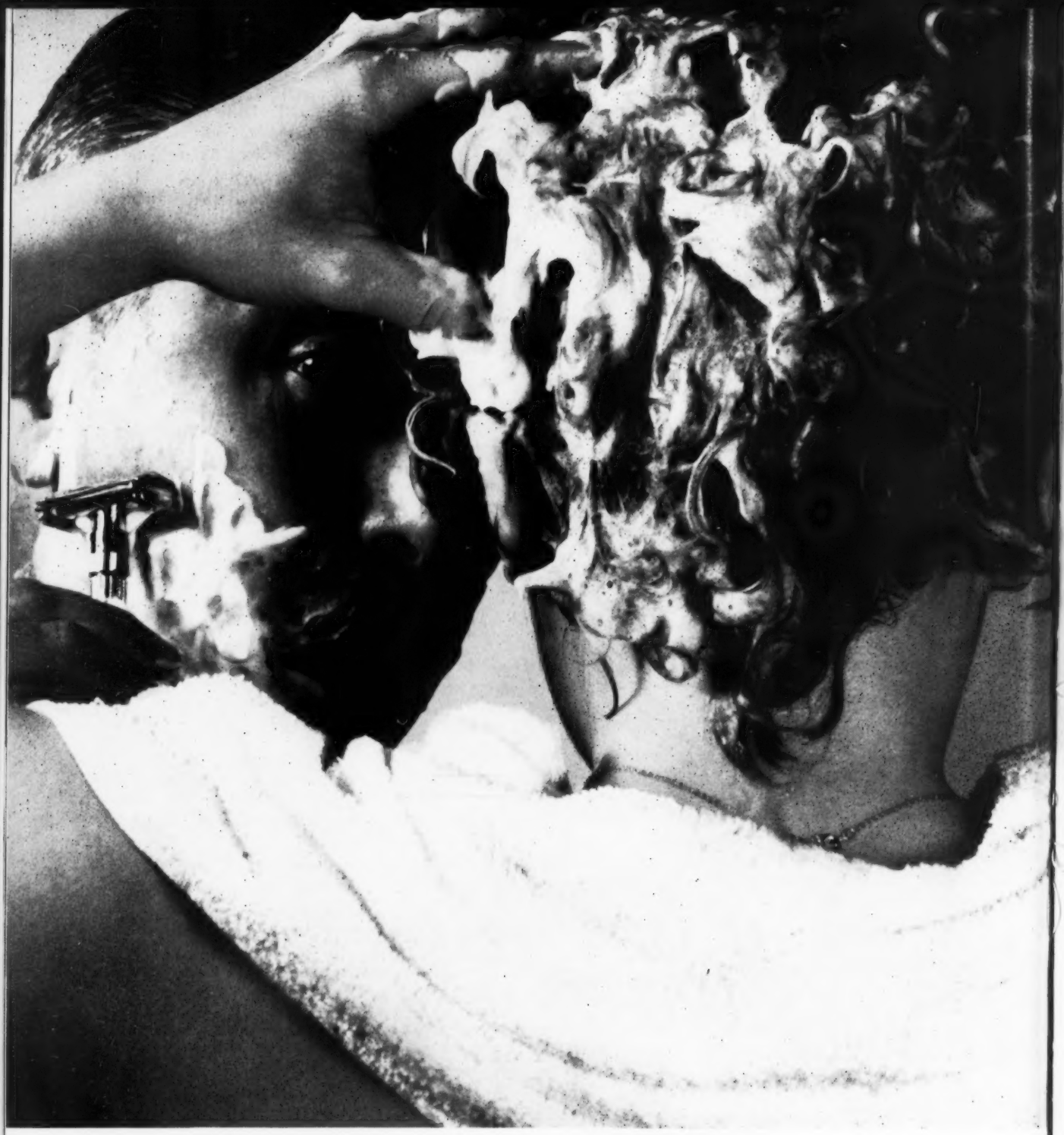
—★—

Canada's Toiletries Sales

The Toilet Goods Manufacturers' Assn. of Canada recently reported that retail sales of toilet preparations in Canada during 1959 totalled $145,323,955. The most important product sold was hair preparations valued at $24,757,736, followed by dentifrices at $21,318,216.

Other large sellers were bath salts and bath oils at $1,822,445, bubble bath $1,143,314, shampoos-soap, $3,612,995 and soapless $7,017,412, shaving preparations (except soap): after shave lotions $3,563,248 and other shaving preparations $1,210,461; and shaving soaps-aerosol, $889,245, lather type (creams), $2,389,418, brushless type (creams), $525,210 and others (cakes, sticks, etc.), $431,148.

Shown at the Cosmetic Career Women, Inc., luncheon, attended recently by 100 women at the Waldorf Astoria Hotel, New York are, seated, left to right: Shirley DeRagon, American Cholesterol Products, Inc., Edison, N. J.; Claire Hellawell, Charles of the Ritz, Inc., New York; Selma Weidenfeld, Rhodia, Inc., New York, luncheon speaker; Helen Stroz, Pacquin, Inc., New York, luncheon chairman. Standing, left to right are: Mary Milo, Everywoman's Family Circle Magazine, New York; Maria Palmerio, Helena Rubenstein, Inc., New York; Judith Goldstein, Health and Beauty Information Service, New York; and Elsie Brand, Commercial Solvents Corp., N. Y.



HIS Shaving cream that lathers just right, wilts whiskers—yet leaves his face silken-soft—because it contains non-irritating ethanolamides as dispersing agents. Ethanolamides, too, keep his hair tonic well-dispersed, creamy. And as emulsifying agents, they keep the polish for his shoes and car smooth and uniform until the container's empty. He demands these qualities in products he buys.

HERS Shampoos with perfect lather bubble size, opacity, body and hair conditioning effect—because of gentle ethanolamides. Ethanolamides, too, keep her cosmetics smooth, stable, safe. As suds boosters, they add muscle to household detergents and soaps. As emulsifiers, they keep polishes for floors, furniture and appliances smoothly blended for lasting lustre.

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Deter gent-Soap Market Continues Growth

COMBINED detergent and soap sales in the United States have continued their steady expansion in 1960. With a record high of 4,367,586,000 pounds, valued at $1,119,884,000, the 1960 output is 2.3 per cent ahead in tonnage and 2.4 per cent in dollar value over 1959. In that year, production of detergents and soap reached 4,269,877,000 pounds, worth $1,093,450,000. More than three quarters of the combined tonnage sales are accounted for by synthetic detergents, according to the quarterly census of soap and synthetic detergent sales just issued by the Association of American Soap and Glycerine Producers, New York. The census is collated from reports of plant sales by 58 member companies.

Synthetic detergent sales in 1960 climbed to 3,310,650,000 pounds and $800,673,000, up 3.3 per cent in quantity and 3.4 per cent in value from 3,203,437,000 pounds and $774,230,000 reported for 1959. Liquid synthetic detergent sales have retained their growth impetus in 1960, showing an expansion of 14 per cent in tonnage and 8.5 per cent in dollar value. The liquid detergents market totaled 645,264,000 pounds, valued at $220,206,000 in 1960, compared with 566,168,000 pounds and $202,901,000 in 1959. Sales of solid syndets rose to 2,665,386,000 pounds and $580,467,000 in 1960 from 2,637,269,000 pounds and $571,329,000 in 1959, representing an increase of 1.1 per cent in volume and 1.6 per cent in value.

Sales in 1960 of both liquid and solid soaps totalled 1,056,936,000 pounds, valued at $319,211,000, compared with 1,066,440,000 pounds and $319,220,000 reported in 1959. This represents a drop of 0.9 per cent in tonnage and 0.003 per cent in dollar value. Other than liquid soaps accounted for 1,024,824,000 pounds and $313,095,000 of the 1960 total, down 1.3 per cent in volume and 0.2 per cent in value from 1959. More than half of the other than liquid 1960 soap market consisted of toilet bar sales which edged up 2.8 per cent to 577,632,000 pounds.

Shaving cream sales last year rose 18.3 per cent in volume and 35.8 per cent in value. This group includes aerosols, soapless, tube and jar type products. Conversely, shaving soaps (stick, powder and cake) have lost 11.0 per cent in quantity and 3.9 per cent in dollar sales, in the past year.

1960 sales of hand pastes and powders, which include waterless hand cleaners rose 13.4 per cent to 9,576,000 pounds. The market for soap paste and jelly, on the other hand, is reportedly 24.1 per cent smaller than in 1959.

Sales of liquid soap rose 12.4 per cent in 1960 to a volume of 32,112,000 pounds. Of this total, packaged liquid soap shampoos ac-

(*Turn to Page* 182)

Detergent and Soap Sales for 1960 and 1959

	Thousands of pounds		Thousands of dollars	
	1960	**1959**	**1960**	**1959**
Detergents, solid	2,665,386	2,637,269	580,467	571,329
Detergents, liquid	645,264	566,168	220,206	202,901
Total	3,310,650	3,203,437	800,673	774,230
Detergents, solid other than shampoo, pkgd.	2,542,854	2,509,284	557,998	548,030
Detergents, solid other than shampoo, bulk	113,975	118,993	16,974	17,425
Detergents, liquid, other than shampoo, pkgd.	73,763*	64,170*	197,625	179,392
Detergents, liquid, other than shampoo, bulk	5,312*	4,880*	5,911	5,764
Detergent shampoos, liquid	12,664	13,768	16,670	17,744
Detergent shampoos, solid	8,557	8,992	5,495	5,874
Soaps, other than liquid	1,024,824	1,037,864	313,095	313,745
Liquid soaps	32,112	28,576	6,116	5,475
Total	1,056,936	1,066,440	319,211	319,220
Bar toilet soaps**	577,632	561,744	210,365	207,057
Laundry bars, yellow & other than white	48,082	47,045	4,320	4,896
Laundry bars, white	107,359	110,803	22,481	24,304
Soap chips & flakes, pkgd.	24,225	26,976	8,113	9,175
Soap chips & flakes, bulk	72,330	81,004	7,044	8,482
Soaps, granulated, sprayed, pkgd.***	100,937	110,683	30,312	33,518
Soaps, granulated, sprayed, bulk***	51,477	57,859	5,568	6,556
Hand pastes and powders, incl. waterless hand cleaners	9,576	8,444	1,932	1,597
Paste & jelly soaps, potash & other	9,433	12,431	1,231	1,745
Shaving soap (stick, powder, cake)	2,009	2,263	1,409	1,466
Shaving cream (tube, jar, aerosols, and soapless)	20,913	17,677	20,164	14,852
Soaps, liquid, other than pkgd. shampoo	3,946*	3,509*	5,881	5,260
Soap shampoo, liquid, pkgd.	68*	63*	235	215
Miscellaneous or other soaps, incl. shampoos (creams, jellies, pastes, powders) pkgd., & bulk	951	935	156	197
Scouring cleansers (not included in total above)	347,933	367,022	50,904	50,811

* expressed in gallons
** includes all toilet bars, mechanics, synthetic, medicated, etc.
*** includes washing powder

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counted for 544,000 pounds, up 7.9 per cent from the previous year's figure. By contrast, sales of packaged liquid synthetic detergent shampoos dropped 8 per cent to 12,664,000 pounds.

Scouring cleanser sales in 1960, not included in the above totals, amounted to 374,933,000 pounds, valued at $50,904,000, compared with 367,022,000 pounds and $50,811,000 in 1959.

—★—

Canadian Firm Expands

Grier Manufacturing Chemists Ltd., Regina, Canada, recently began construction on a new plant to manufacture a variety of waxes, detergents, cleansers and disinfectants, under the "Sky Products" label. It was also announced that plans to expand production into household products are now being studied.

—★—

New Oil Spec. Officers

Oil Specialties & Refining Co., Brooklyn, makers of floor waxes, resin floor finishes, and floor cleaners of all types, recently announced the appointment of John A. Hunt and Joseph Kutny as vice-president and director of sales, and secretary-treasurer, respectively.

Mr. Hunt joined the firm in 1946 and was appointed sales manager in 1955. Mr. Kutny joined the company in 1946 as production manager, was named plant manager in 1947, and added office manager to his other titles in 1960.

John A. Hunt

Milner Names Dawson

Charles M. Dawson, formerly northern regional manager, was recently appointed general sales

Charles M. Dawson

manager of Dumas Milner Corp., Jackson, Miss. Mr. Dawson, with the company for 16 years, is in charge of promotions and selecting salesmen and brokers for the company.

Howard S. Cohoon, Jr., northern regional sales manager, has been appointed northern regional manager, in charge of the northern part of the U. S., and from Winnipeg east in Canada. F. B. Brisham will cover the southern region of the United States plus from Winnipeg west in Canada.

Appointed district managers were Charles Bufkin, Jerry Kopp, Jack Peters and Gerald Vrzal. J. M. Green has been named sales manager for the firm's military department.

Joseph Kutny

Felton Sales Conference

Felton Chemical Co., Brooklyn, N.Y., recently conducted a three day company-wide sales meeting at the Hotel Biltmore, New York. Dr. Joseph Felton, Mrs. Sophie Felton and Jack L. Weisman, executive vice-president, outlined plans for continued expansion in addition to a review of the 38 years of Felton's progress.

The scope of the meeting was international, and in addition to Felton's domestic personnel, the following also attended: Leon Fefen, Felton Co., France; Albert Grant, Felton de Mexico, S.A.; Ray Stansfeld, Felton Co., Great Britain; George Liebel, Felton, Montreal, and Philip Weinrobe, Felton, Los Angeles.

New products for the aerosol and chemical specialties industries and marketng trends were presented by Robert Felton, vice-president, and Robert Elias, sales manager. Ira Kapp, technical director, conducted a tour through newly completed plant facilities (12,000 square feet), located adjacent to the existing plants.

—★—

Jaycees Honor Halaska

George J. Halaska, vice-president of sales and advertising, Acme Chemical Co., Milwaukee, Wis., has been named Milwaukee's "Junior First Citizen" for 1960, by the Milwaukee Junior Chamber of Commerce.

He received the Jaycee Distinguished Service Award, "for his outstanding contribution to his profession and to the general welfare of the community," at a dinner meeting held at the Pfister Hotel, February 21.

Mr. Halaska is the youngest man ever appointed to the advisory board of the Management Institute, division of sales and marketing, University of Wisconsin. In addition to his duties as vice-president of Acme Chemical, he serves as special assistant to the company president and is on the board of directors.

At the age of 27, Mr. Halaska was elected to the board of directors of the National Sales Executive Club, youngest man in the country to be so honored. He is currently a national district director of the club as well as a board member. He is also a national winner in the club's "Recession Buster" program and a winner of its "Youth Education Services" program.

Shown attending the recent Cosmetic Industry Buyers' and Suppliers luncheon, held at the Hotel Pierre, New York, are left to right: Norman Chadwick, vice-president, Avon Products, Inc., New York; Maxwell B. Rogers, director of package design, Avon, luncheon speaker; Robert C. Ring, Hewitt Soap Co., Dayton, O., CIBS president, and Dallas D. Roush, Owens-Illinois Glass Co., Toledo, O., CIBS general program chairman.

—★—

Fair Trade Suit Upheld

A permanent injunction restraining Hess Brothers, Allentown, Pa., from selling or advertising certain products at less than fair trade prices was handed down recently. The court order is the result of an equity suit brought by J. B. Williams Co., New York, manufacturers and distributors of toiletries and drugs.

The judge rejected the defense charge of inadequate enforcement by J. B. Williams and commented "defendant, both in its letters to the plaintiff and in its brief, has been generous in its advice on how the plaintiff should police its fair trade prices."

The judge concluded "the purpose of the fair trade act is to prevent predatory price cutting and cutthroat competition and to protect owners and public alike against unfair practices in the distribution of articles of standard quality under a distinguished brand or mark. It is our judgement that the defendant has clearly violated the terms of the fair trade agreement to which it was bound and its defenses are of no avail."

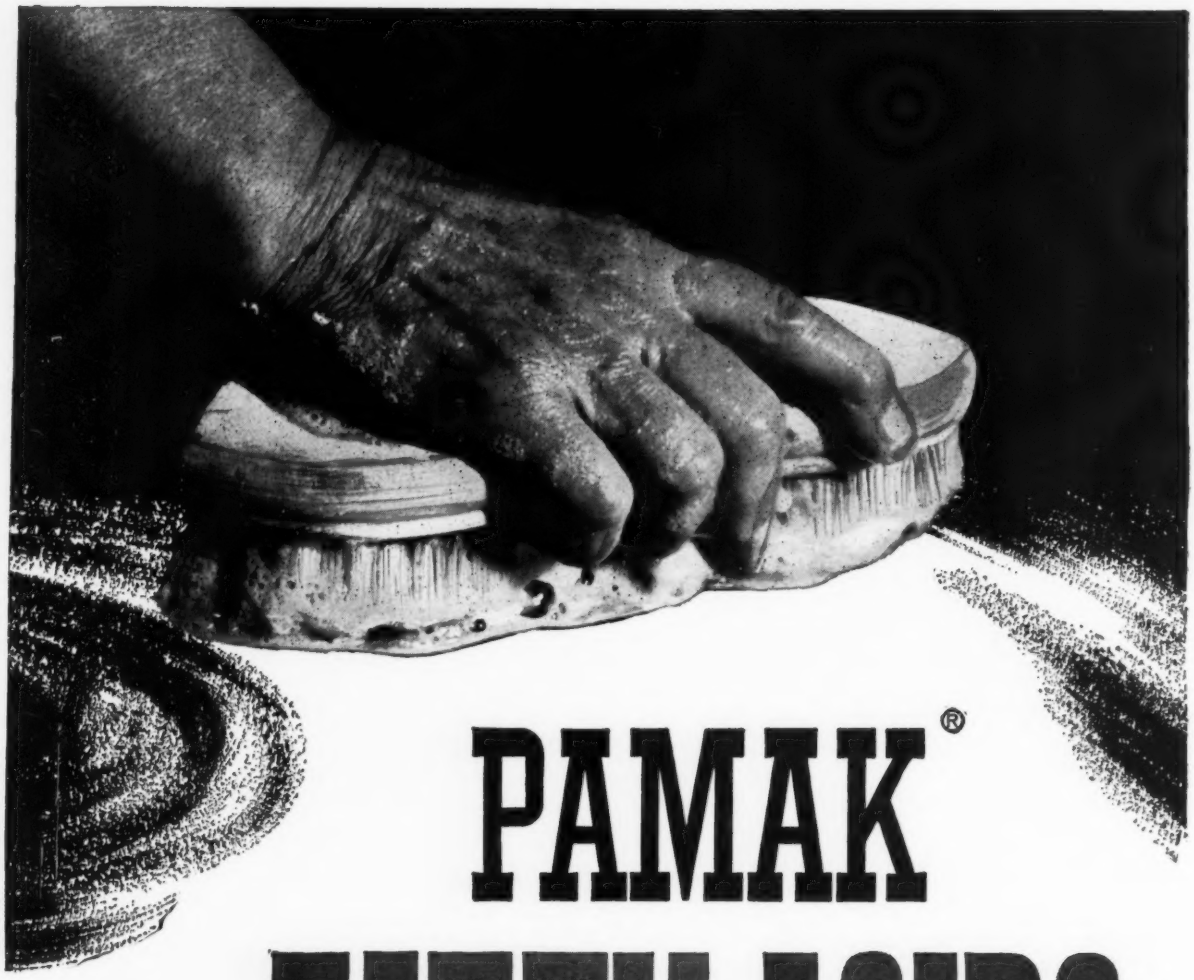
Victor M. Levey has been appointed director of research, Felton Chemical Co., Brooklyn, N.Y. During the past five years he has lectured on organic chemistry at the graduate division of Brooklyn College.

—★—

Chicago Cos. Chems. Meet

Dr. I. Schurman, associated with the Chicago district of the Food and Drug Administration for twenty years, was the speaker at the February 14th meeting of the Chicago chapter of the Society of Cosmetic Chemists, held in the Merchandise Mart.

Dr. Schurman, now chief chemist of the department of Health, Education, and Welfare, spoke on "The FDA — What It Is and What It Does."



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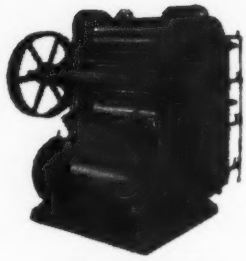

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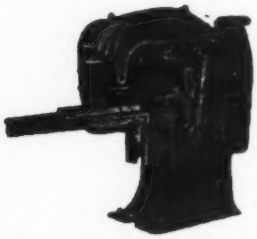

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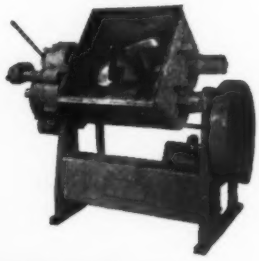

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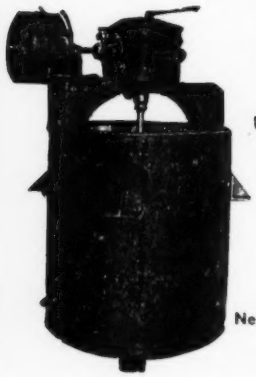

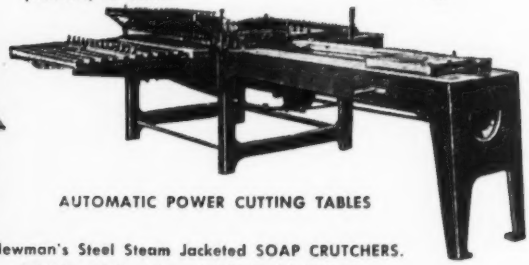

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(*Turn to Page* 189)

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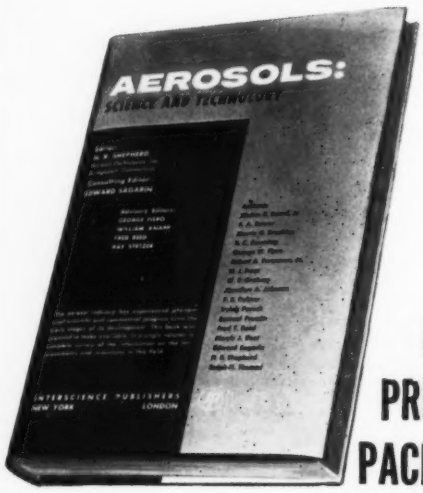

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Opens West Coast Office

Warwick Wax division of Western Petrochemical Corp., New York, has established a west coast sales district with headquarters in Pomona, Calif., and named Lyle Christensen district sales manager, it was announced recently by Maurycy Bloch, president of Western.

Mr. Christensen has served with the Warwick division for over 7 years. Prior to his most recent appointment, he was manager of the company's midwest sales district.

—★—

ASPI Officers and Directors

The American Society of Perfumers recently elected officers and directors for 1961. Officers: chairman, Bernard Polak, Polak's Frutal Works, Inc.; president, William H. Barlow, retired; first vice-president, John Hancock, Warner-Hudnut; second vice-president, Harry Cutler, Revlon, Inc.; secretary, Dorothy Douglass, Shulton, Inc.; and treasurer, Edwin D. Morgan, Jr., Lever Bros. Co.

Directors: Josephine Catapano, International Flavors & Fragrances, Inc.; August J. Schwindeman, Dodge & Olcott, Inc.; Dr. Steven Jellinek, Polak's Frutal Works, Inc.; and Edward J. Shuster, International Flavors & Fragrances, Inc.

Since his election as first vice-president, William H. Barlow, 67, has died. He was killed by a hit and run driver near his home in Brooklyn on Feb. 25. Mr. Barlow is survived by his wife, Hazel.

John N. Gammon was recently named vice-president in charge of industrial division sales, Nopco Chemical Co., Newark, N.J. He was formerly southern district sales manager.

—★—

C-P Buys Unexcelled Div.

Colgate-Palmolive Co., New York, purchased recently, for $3,000,000, the consumer products division of Unexcelled Chemical Corp., New Canaan, Conn. Items in the line include "Wash-N'-Dri" pre-moistened towels, "Trav" laundry powder packets, "Baby Bottom Bath", and "Memo" personal hygiene products.

—★—

New Ungerer Price List

Ungerer & Co., 161 Avenue of the Americas, New York 13, has recently made available a new 24 page booklet containing the current prices of their essential oils and aromatic chemicals. In addi-

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tion to its plant and research laboratories in Totowa, N. J., the company maintains offices in Atlanta, Boston, Chicago, Los Angeles, Philadelphia and St. Louis; and subsidiaries in England and France.

—★—

Canford Opens Plant

The new Canford Manufacturing Corp., Canton, Pa., a subsidiary of Stanley Home Products, Inc., Westfield, Mass., was dedicated recently, at ceremonies attended by approximately 1,000 people.

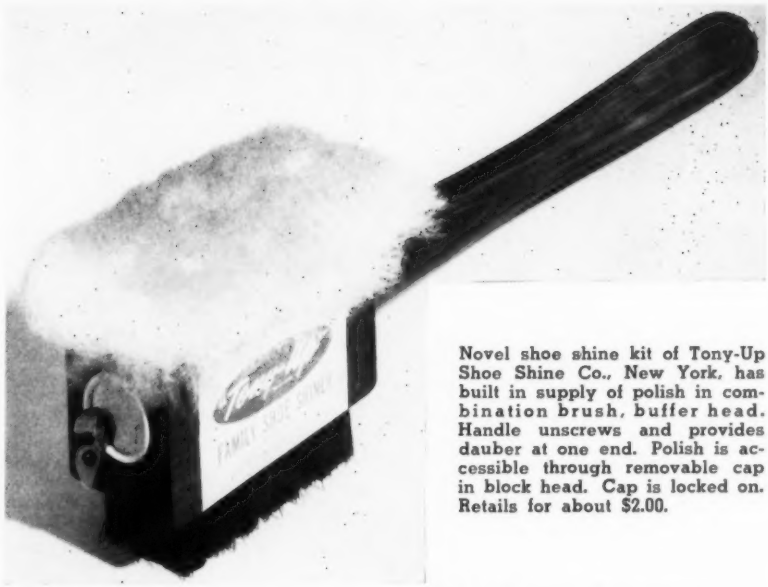
The 30,000 square foot plant will manufacture a variety of plastic articles and will be equipped to complete a wide range of injection molding and custom molding items.

—★—

Harper Joins Jefferson

P. V. Harper has joined the Austin laboratories of Jefferson Chemical Co., Houston, Texas, as technical service representative in the field service section, it was announced recently by R. F. McCleary, vice president, research and development.

Prior to his appointment, Mr. Harper was employed by Shell Chemical Co. as a research chemist.



Novel shoe shine kit of Tony-Up Shoe Shine Co., New York, has built in supply of polish in combination brush, buffer head. Handle unscrews and provides dauber at one end. Polish is accessible through removable cap in block head. Cap is locked on. Retails for about $2.00.

Coutin Associates Move

Pierre Coutin Associates, with former headquarters at 118 East 28th St., New York, have moved to larger facilities at 381 Park Avenue South.

The telephone number remains the same, MU 3-9057.

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Weppner Elected President

M. A. Weppner has been elected president of Central Solvents and Chemicals Co., Chicago,

M. A. Weppner

replacing H. G. Sampson who has retired, it was announced recently.

Mr. Weppner joined the Solvents and Chemicals group's Cleveland plant accounting staff in 1933. He later transferred to sales contact work and became an officer and director of the company in 1948. He was appointed executive vice-president in 1960.

★

Edna W. Bauer Dies

Edna Warner Bauer, 75, of Plainfield, N. J., president of Pfaltz & Bauer, Inc., New York, manufacturers of essential oils and aromatic chemicals died Feb. 13, after a long illness. Mrs. Bauer became president of the firm after the death of her husband, Frank, in 1938.

★

New Dow Sales Managers

Three management changes in the sales office of Dow Chemical Co., Midland, Mich., were announced recently by Donald K. Ballman, vice-president and director of sales.

Glenn H. O'Neal, sales manager of the St. Louis office, has been named sales manager of the Chicago office. He succeeds Henry S. Pierson, who recently left the company.

Robert J. Minbiole, sales manager of the New Orleans office for the past five years, has been appointed sales manager of the St. Louis office, succeeding Mr. O'Neal.

Frank H. Sellars, district sales manager for chemicals in the New York office, has been named sales manager at New Orleans.

★

Colgate Cited by AIL

Colgate-Palmolive Co., New York, was recently presented a certificate of recognition by the American Institute of Laundering, marking the company's 25 year membership in the 4,000 member organization. The certificate, noting that C-P has been enrolled in the AIL's Silver Circle Club, was accepted by John M. Nykiel, sales manager of the associated products division. The division supplies the laundry industry with bulk soaps and detergents, specialty products, and vending machine pouches. The certificate was awarded by George Isaacson, general manager of the Institute, who expressed his gratitude to the company for its "loyal membership."

Revlon Names Mandel

Revlon, Inc., New York, recently named Evan W. Mandel to the new position of vice-president in charge of marketing services. Mr. Mandel joined the company in 1955 as advertising manager. He became assistant to the president in 1958.

Charles Revlon, president of Revlon, said reorganization of the company's marketing operations led to the creation of the new post.

★

P&G Manager Retires

A. M. Wood, manager of the southwestern sales division of Procter & Gamble Co., Cincinnati, has retired after 39 years with the firm, it was announced recently. He has been succeeded by John Palmer, former Dallas district manager.

Mr. Wood was appointed Dallas district sales manager in 1947, and named southwestern sales division manager in 1948.

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index to advertisers

Acme Shellac Products, Inc. 110
Aerosol Machinery Co. 139
Air Reduction Chemical Co. 176
Allied Chemical Corporation,
General Chemical Division 132
Nitrogen Division 180
Solvay Process Division ....2nd Cover
American Agricultural Chem. Co. 15
Anchor-Hocking Glass Corp. 114, 115
Antara Chemical Div., General
Aniline & Film Corp. 33
Argueso & Co., M. 182
Arizona Chemical Co. 14
Aromatic Products, Inc. 82
Atlantic Refining Co. 25

Badertscher, A. Edison 185
Barr & Co., G. 116, 137
Blockson Chemical Co. 178
Books 188, 195
Brockway Glass Co. 126, 127

Candy & Co. 6
Central Can Co. 118
Chase Products Co. 137
Chemical Specialties Mfrs. Assn. 68
Clark Mfg. Co., J. L. 112
Commercial Solvents Corp. 27
Continental Oil Co. 13
Cowles Chemical Co. 92
Cox, Dr. Alvin J. 185
Crown Cork & Seal Co., Inc. 130

Dawe's Laboratories, Inc. 192
Dema Engineering Co. 38
Dietert Co., Harry W. 158
Dodge & Olcott, Inc. 71
Dragoco, Inc. 111
Dreyer, Inc., P. R. 100
Durez Plastics Division 66

Eastman Chemical Products, Inc. 91
Eltex Research Corp. 185
Emery Industries, Inc. 36
Emhart Mfg. Co. 152
Ertel Engineering Corp. 152

Felton Chemical Co. 23
Firmenich, Inc. 32
Florasynth Laboratories, Inc. 188
Fluid Chemical Co. 137
Food Machinery & Chemical Corp.,
Chlor-Alkali Division 34
Fairfield Chemical Div. .....3rd Cover
Mineral Products Division 12
Fritzsche Brothers, Inc. 59, 60

Gard Industries, Inc. 137
Gillespie-Rogers-Pyatt Co. 96
Gillette Safety Razor Co. 191
Givaudan-Delawanna, Inc. 40, 41, 172
Goodrich Chemical Co., The B. F. 64
Gray Co., The 152
Gresteo Dyes & Chemicals, Inc. 137

Hazleton Laboratories, Inc. 185
Henkel International, G.m.b.H. 142
Hercules Powder Co. 8, 9, 184
Hooker Chemical Corp. 30, 168
Hostawax Co. 88
Houchin Soap Machy. Div. 148
Hub States Chemicals & Equipment 191
Hudson Laboratories, Inc. 185

I-K-I Mfg. Co. 137
Imco Container Co. 120

Kiefer Machine Co., The Karl 144
Krystall Chemical Co. 156

La Wall & Harrisson, Inc. 185
Leberco Laboratories 185
Lehmann Co., J. M. 154
Lewers, Dr. W. W. 185
Lurgi, G.m.b.H. 151

Magnus, Mabee & Reynard, Inc. 108
Marchon Products Co., Ltd. 44
Mazzoni, S.p.A., G. 146, 147
McCutcheon, Inc., John W. 185
McLaughlin Gormley King Co. 72
Morton Chemical Co. 102
MRM Co. 148

National Starch & Chemical Corp. 84
Newman-Green, Inc. 128
Newman Tallow & Soap Machy. Co. 186
Nopco Chemical Co. 62, 63
Norda 3

Old Empire, Inc. 139
Onyx Chemical Corp. 4
Oronite Div., California
Chemical Co. 18

Penick & Co., S. B. 70
Peterson Filling & Packaging Corp. 137
Pfizer & Co., Charles 61
PFW 65
Philadelphia Quartz Co. 164
Pilot Chemical Co. of Californ'a 31, 162
Polyvinyl Chemicals, Inc. 193
Precision Valve Corp. 122
Price, Dr. Donald 185
Procter & Gamble Co. 42

Ralm Products, Inc. 137
Risdon Mfg. Co. 134
Rohm & Haas Co. 98
Roure-Dupont, Inc. 10, 11

Schimmel & Co. 166
Scientific Associates, Inc. 185
Shulton, Inc. 17
Sindar Corp. 86
Foster D. Snell, Inc. 160, 185
Spraying Systems Co. 192
Stalfort & Sons, Inc., John C. 137
Stepan Chemical Co. 7
Stillwell & Gladding, Inc. 187
Sun-Lac, Inc. 137

Terriss-Consolidated Industries 190
Testfabrics, Inc. 187
Tombarel Products Corp. 190

Ultra Chemical Works, Inc. 28
Ungerer & Co. .....3rd Cover
Union Carbide Corporation,
Union Carbide Chem. Co. Div. 170
Union Standard Equipment Co. 189
U. S. Borax & Chemical Corp. 29
U. S. Bottlers Machinery Co. 140
U. S. Industrial Chemical Co. 16

van Ameringen-Haebler Div., of
International Flavors &
Fragrances, Inc. 93
Van Dyk & Co., Inc. 106
Velsicol Chemical Corp. 81
Verona Aromatics, Division of
Verona Pharma Chemical Co. 26
Victor Chemical Works 174

Wallace & Tiernan, Inc.,
Chemical Products Division 190
Harchem Division 104
Washburn Co., T. F. 69
West End Chemical Co. 24
Wisconsin Alumni Research Found. 187
Wyandotte Chemicals Corp. ..105, 107, 109

COMING MEETINGS

American Chemical Society, national meeting, St. Louis, Mo., March 21-30.

American Oil Chemists' Society annual meeting, Sheraton-Jefferson Hotel, St. Louis, May 1-3, 1961; fall meeting, Pick-Congress Hotel, Chicago, Oct. 30-Nov. 1, 1961.

American Society of Perfumers, seventh annual open symposium, Essex House, New York, April 13.

Chemical Specialties Manufacturers Association, 47th mid-year meeting, Drake Hotel, Chicago, May 15-17, 1961; 48th annual meeting, Roosevelt Hotel, New York, Dec. 4-6.

Drug, Chemical and Allied Trades Association, annual meeting, Pocono Manor Inn, Pocono Manor, Pa., Sept. 14-17, 1961.

Folding Paper Box Assn. of America, annual meeting, Drake Hotel, Chicago, March 20-22.

National Chemical Exposition, Amphitheater, Chicago, Sept. 5-8, 1961.

National Hotel Exposition, Coliseum, New York, Nov. 6-9.

National Packaging Exposition and Conference, Exposition Center, Chicago, April 10-14, 1961.

National Pest Control Association, annual convention, Deauville Hotel, Miami Beach, Fla., Oct. 16-19.

National Premium Buyers Exposition, 28th annual show, Navy Pier, Chicago, April 10-13.

National Sanitary Supply Assn., 38th annual convention, and trade show, Conrad Hilton Hotel, Chicago, April 23-26, 1961.

New York Premium Show and Premium Advertising Conference, New York Coliseum, Sept. 25-28, 1961.

Packaging Machinery Manufacturers Institute, (PMMI) fourth annual show, Cobo Hall, Detroit, Nov. 7-10, 1961.

Society of Cosmetic Chemists, scientific meeting, Biltmore Hotel, New York, May 12; Chicago Chapter, monthly meetings at Henrici' Restaurant, Merchandise Mart, March 14, April 11; June 13; Sept. 12; Oct. 10; and Nov. 14. New York Chapter, Annual Ladies Night, April 12.

Synthetic Organic Chemical Manufacturers Association, monthly luncheon meetings, Roosevelt Hotel, New York, April 13; June 13; Sept. 12; Oct. 10; and Nov. 14; annual spring outing, Skytop, Pa., May 22-24.

Toilet Goods Association, 26th annual meeting, Waldorf-Astoria Hotel, New York, May 9-10, 1961; Scientific Section, May 11.

BOOKS...

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* * * *

1. Surface Active Agents and Detergents by Schwartz-Perry.

Volume I—590 pages, 51 illustrations. Covers manufacture, chemistry and practical applications of surface active agents. Price $13.50.

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2. Detergent Evaluation and Testing by Jay C. Harris.

220 pages, 26 illustrations. A critical selection of methods and procedures for testing detergents. Price $4.50.

3. Soap Manufacture by Davidson, et al.

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tale ends

THE shift to plastic bottles for bleaches is continuing apace. "Clorox" has hit Connecticut in four sizes: gallons and half-gallons, both in plastic bottles with handles; a quart size without handle, and a "king size" of 157 ounces. At least five other major packers of bleach are going into plastic, including Purex, we hear via the grapevine.

* * * * *

Talk about carrying the competitive fight to the enemy's front door step . . . When Fleuroma, Inc., a perfuming materials firm, occupied a big plant in Long Island City, N. Y., last fall, parallel to the Long Island Railroad tracks, thousands of LIRR commuters and travelers on Pennsylvania Railroad trains to New England could see the words, "Fleuroma Fragrances" on the front of the building. The plant, incidentally, is located on Dreyer Ave., a name which coincides with that of another essential oils firm. Late last month, on a billboard adjacent to the railroad tracks and about 50 yards west of the Fleuroma plant, an advertisement for Fritzsche Brothers, Inc., New York, flavor and fragrance firm appeared. "Give your products more appeal with fragrances and flavors by Fritzsche Brothers," the advertisement proclaimed.

When asked to comment on this new phase in its advertising, a Fritzsche Brothers spokesman pointed out that many of the firm's customers and prospects pass this sign daily. Included is the president of Avon Products.

* * * * *

Add to the growing list of grandfathers the name of Edgar Ellis of Charabot, Inc., New York aromatics firm. Edgar's daughter, Mary (Mrs. Richard B. Meglay), of Canton, Mass., gave birth to a little girl, Deirde, on February 16. Ed has two sons, one in Hofstra College, the other in C. W. Post College, both on Long Island.

* * * * *

Snip-caps used on packages of light-duty, liquid detergents the newest thing in modern improvements in packaging? Not so, says Max Brown, vice-president of Fels & Co., Philadelphia. To prove it he sends us a photostat of an advertisement for Myer's Sprinkling Washing Blue. The ad appeared in a memorandum and weather guide booklet published by a Philadelphia firm in 1894. The illustration for the ad shows a hand holding a pair of scissors snipping off the tip of the cap.

* * * * *

Scott Pattison of the Soap Association has sent us a copy of a letter he wrote recently to Earl Brenn, the Big Fisherman of Huntington, Ind. Scott sent Earl a four cent stamp as his contribution to the Earl Brenn Fish Mounting Fund. Earl has undertaken to have mounted a sailfish caught by his wife during the December CSMA meeting in Hollywood, Fla. The fish is expected eventually to reside on a wall in Earl's office. Scott's contribution, he says, is "proportioned to the size of fish which I have been successful in catching."

* * * * *

One of the newest members of the Young Presidents' Organization is our old friend, Vern I. McCarthy, Jr., 33-year-old president of Vulcan Containers, Inc., Bellwood, Ill. YPO, in case you didn't know, is a national group of more than 1600 business leaders who achieved presidency of their firms before their 40th birthday.

* * * * *

The boys in the public relations department of S. C. Johnson & Son, Inc., out in Racine, Wis., pulled a boo-boo in the first paragraph of a release announcing the opening of the new Johnson pressure packaging center in Waxdale, Wis., last month. They claimed the Johnson plant was the first in Wisconsin. When we pointed out that IKI Manufacturing Co., Edgerton, Wis., had beaten the Johnson folks to the punch, Wally Butterworth at Johnson wired his thanks. He added that when he called the IKI people they were "most understanding."

* * * * *

Roy and Helen Peet left March 12 for a flying trip to Europe. The 19 day trip will take them to Amsterdam, Vienna and Paris. Also visiting Europe are Gert and Mrs. Keller (Schimmel & Co., Newburgh, N. Y.), who are combining business and skiing.

* * * * *

Clarence Carter, aerosol airman of Danville, Ill., and incidentally head of Continental Filling Corp., has just acquired a new, five-place Beechcraft "Travl-Aire," our spies report. Clarence is an ardent flier, and is apt to take to the air on a few minutes notice to call on a customer, fly to a meeting, or take a vacation. His co-pilot is Jack Campbell, Continental's sales manager.

* * * * *

Sharon Boyle, a high school senior in Bayonne, N. J., has chosen as a science project the task of determining which soap "really washes the cleanest." Using a new type dialysis, or chemical separator, patented by her father, James M. Boyle, a research chemist, Sharon is analyzing several different brands of soap to find which one dissolves most completely during washing. We hope she lets us know when she finds out. We'll gladly pass along her findings to all our gentle readers.

During a recent motor trip, Judy Cooper, Mountain View, Calif., converted the well in the trunk of her 1961 Chevrolet into a "laundry room," by using a detergent and washboard, and hanging the clothes from a line tied to the trunk lid.

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